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INDUSTRIAL HEALTH AND SAFETY: THE NEED FOR EXTENDED FEDERAL REGULATION

J. Michael Harrison*

I. Introduction

There is currently very little federal control over the safety and health of working men and women in American industry.¹ The Federal Government's major role with respect to working conditions has been provided by the safety provisions of the Walsh-Healey Public Contracts Act.² These provisions require that work performed under federal contracts covered by the Act³ be free from unsanitary conditions, and that such work not be hazardous or dangerous to the health and safety of employees. However, the vitality of that Act is severely sapped by its provision that compliance with state safety regulations, which are often inadequate, shall be *prima facie* evidence of compliance with the Act.⁴ Beyond the Walsh-Healey coverage, federal statutes provide only limited additional coverage of the civilian work force.⁵

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¹ The Fair Labor Standards Act of 1938, which was enacted under the federal commerce power, included important child labor and maximum hours provisions which undoubtedly contributed to industrial safety. However, the Act was silent with respect to the regulation of working conditions. 29 U.S.C. § 80 (1938).

² 41 U.S.C. § 35 (1936).

³ *Id.* Sec. 1(a) limits the coverage of the act to contracts for the manufacture or furnishing of materials, supplies, articles or equipment which exceed \$10,000 in value. Section 9 further restricts coverage by exempting any purchase usually obtainable on the open market, firsthand purchases of agricultural products and other perishables, and common carriers or carriage of freight or personnel where published tariff rates are in effect. President Johnson reported that only about one-half of the labor force was covered by Walsh-Healy, and only part of the time. 26 CONG. Q. WEEKLY REP., Vol. XXVI, No. 9, Feb. 23, 1968 at 318.

⁴ *Id.* Sec. 1(e).

⁵ The Secretary of Labor has broader regulatory powers under 33 U.S.C. § 941 (1958), amending Sec. 41 of the Longshoremen's and Harbor Workers Compensation Act (33 U.S.C. § 941 (1927)). The Secretary's powers are similar to his Walsh-Healy powers under the National Foundation of the Arts and the Humanities Act of 1965 (20 U.S.C. § 951-963). The Service Contract Act of 1965 (41 U.S.C. § 351) gives the Federal Government the power to cancel contracts, in the case of services contracted for in excess of \$2,500, which do not meet the "reasonable limitations" of the Secretary of Labor, with respect to safety and health requirements (Sec. 4(b)). Where the Walsh-Healy Act applies, however, the McNamara-O'Hara Act does not. Again, transportation exemptions, similar to the Walsh-Healy exemptions, are in effect. The

The Secretary of Labor possesses the power to regulate working conditions of federal employees under the Federal Employee's Compensation Act.⁶ However, until quite recently, it has not been seriously proposed that the Federal Government regulate industrial safety to the full extent of its commerce power. Such a proposal was made by the Johnson Administration in the form of the Occupational Safety and Health Act of 1968.⁷ This bill, while never enacted into law, stirred up a great deal of confusion and controversy. In its aftermath, it left a wealth of information which should afford a better understanding of what ought to be the federal role in this area.

The proponents of such a pervasive federal law generally argue that there are simply too many industrial deaths and injuries to further ignore such legislation. President Johnson's statement of January 26, 1968, in support of his proposal, relied heavily upon the absolute number of annual industrial deaths and injuries.⁸ This crusading spirit dominated the statements of former Secretary of Labor Willard Wirtz before the Senate Subcommittee on Labor:

Every single minute we talk, 18 to 20 people are going to be hurt severely enough that they will have to leave their jobs, and a good many of them will never come back because they won't be able to.⁹

But Secretary Wirtz went beyond this statistical approach with his suggestion that reliance upon injury figures was demeaning to

only other acts currently providing for safety regulation are the Vocational Rehabilitation Act (Amendments of 29 U.S.C. § 31-33) which provides for regulation of workshops and rehabilitation facilities, and the recent bill (H.R. 10946) signed by President Nixon on August 9, 1969 providing for regulation of safety and health conditions under federally financed construction projects. P.L. 91-54.

⁶ U.S.C. § 8101 (1916).

⁷ President Nixon, in a message to Congress on August 6, 1969, proposed similar legislation. Both bills will be discussed in detail, *infra*, in the context of the author's proposals for federal action. With respect to the Nixon proposal, see 50 CCH LAB. L. REP. Aug. 12, 1969; New York Times Aug. 7, 1969, at 1; and 27 CONG. Q. WEEKLY REP., no 32, Aug. 8, 1969 at 1468.

⁸ CONG. R. WEEKLY REP., Feb. 23, 1968 at 318, TIME concluded a recent article on this subject with the statement: "Every month that the acrimonious debate [concerning expansive federal industrial safety legislation] drags on . . . another 1,100 U.S. workers will die." *Industrial Safety: The Toll of Neglect*, TIME, Feb. 7, 1969 at 76.

⁹ *Hearings on S. 2864, the Occupational Safety and Health Act of 1968, Before the Subcomm. on Labor of the Comm. on Labor and Public Welfare, U.S. Senate*, 90th Cong. 2nd Sess. 60-93 (1968). Statement of Hon. W. Willard Wirtz.

our humanity; as long as there were *any* needless industrial accidents, there would be sufficient justification for federal action.¹⁰

The opponents of federal action have failed to rebut Wirtz's condemnation of the statistical approach, and have, instead, advanced equally emotional arguments. Further intervention of the Federal Government into an area which the business community regards as within the traditional bailiwick of private interests and local government is decried as anathema.¹¹ Opponents reject the conclusion that those currently responsible for industrial safety have not done a good job, and that extensive federal regulation could do more than merely undermine state efforts.¹²

Both sides *have* used data when it has supported any of their arguments. In fact, the published reports of both Senate and House hearings on the 1968 Occupational Safety and Health Act are replete with statistical information. Unfortunately, neither in these reports nor anywhere else has an attempt been made to analyze thoroughly the available information. Such an analysis is a prerequisite to a determination of the proper federal role in the area of industrial safety.

Reliance on emotional argumentation will not suffice to provide satisfactory answers. Injury data must be examined and interpreted. The best indication of the degree of danger to which a worker is subjected is the "injury frequency rate" which tells us how often injuries occur.¹³ Since the primary concern is prevention of injuries, the number of occurrences is more important in this analysis than the severity of the injuries. The author has, therefore, not based any conclusions upon an analysis of "injury severity rates."¹⁴

¹⁰ *Id.*

¹¹ *Id.* The idea that the Labor Secretary could become a "virtual safety czar" has irritated businessmen. *Life or Death for Your Business*, NATION'S BUSINESS, April, 1968, reprinted at 792-796.

¹² *Id.* See also the Prepared Statement of Thomas D. Nyhan on behalf of the Illinois State Chamber of Commerce, at 712-713.

¹³ The "injury frequency rate" is the number of disabling work injuries for each million man-hours worked. A "disabling work injury" is an injury arising out of and in the course of employment, which results in death, permanent total disability, or temporary total disability. The term "injury" includes occupational disease. See STATE OF NEW JERSEY DEPT. OF LABOR AND INDUSTRY, BUREAU OF ENGINEERING AND SAFETY, WORK INJURIES IN NEW JERSEY INDUSTRY, 1966, at 15. All states reporting injury frequency rates to the Bureau of Labor Statistics use these definitions in compiling their data.

¹⁴ *Id.* The "injury severity rate" is the average number of days lost as a result of disabling work injuries for each million man-hours worked.

Available injury frequency rates are somewhat unreliable and therefore misleading. This unreliability, however, stems mainly from underreporting by employers.¹⁵ Thus, one should not conclude that the situation is perhaps better than the data would indicate. In all other respects the data presented in this study were compiled and presented by state labor departments in a uniform manner. As a result, a meaningful comparison between sets of frequency rate data can be made.¹⁶

It is the purpose of this article to raise and answer these questions: (1) Is the current level of injury frequency on the job unsatisfactory? (2) If so, can this level of injury frequency be reduced through more effective industrial safety regulation? (3) To what extent and for what reasons have existing regulatory programs, both public and private, succeeded in reducing frequency rates? (4) In what manner, if at all, should the Federal Government extend its regulation of industrial safety?

An affirmative answer to the first two questions is preliminary to the other inquiries. It will be worthwhile to proceed to a discussion of alternative courses of action only if we are convinced that further reduction of industrial hazards to health and safety is both necessary and possible. The author concludes herein that both questions are to be answered in the affirmative.

These conclusions require a thorough examination of the third question. If present methods of regulation under existing regulatory programs, be they governmental or private, are proceeding in an adequate manner toward the achievement of satisfactory levels of occupational safety, then there would be little justification for additional federal activity.

However, the author concludes that this is not the case and

¹⁵ *Hearings on S. 2864*, *supra* note at 9, Statements of Ralph Nader, at 510, and Prof. Jerome Gordon, Columbia U., at 547. The testimony of these witnesses indicated a possible 10 to 20% undernumeration in annual injury frequency rates by industries reporting to state agencies. Reports on injuries covered by workmen's compensation are, on the other hand, accurate. We will treat the reported injury frequency rates as accurate, with the proviso that, if anything, they are too low, and that inconsistencies in the degree of underreporting from state to state and industry to industry may weaken the accuracy of comparisons.

¹⁶ The injury rate data presented in this study were compiled under the American Standard Method of Recording and Measuring Work Injury Experience, approved by the Am. Standards Ass'n., 1954.

that current regulatory activities are inadequate. The fourth question is thus concerned with two remaining inquiries: (a) Would it be nonetheless advisable to attempt to modify existing programs rather than to attempt a federal remedy? (b) If not, what sort of general program for federal regulation should be instituted?

II. Current Status of Industrial Safety

A. The Present Level of Injury Frequency

The national average injury frequency rate for all manufacturing was 15.3 in 1951.¹⁷ The Bureau of Labor Statistics reported that by 1958 this rate had dropped to 11.9. By 1965 it had, however, risen again to 12.8.¹⁸ Whether these rates are acceptable will be discussed below. We should note that these averages conceal a very relevant point. Some industries are either inherently very safe and require no regulation at all, or have excellent safety records for other reasons, while other industries are more dangerous and their injury frequency rates reflect this fact. For example, the twenty-five industries with the worst average frequency rates from 1958 to 1965 ranged from 23.6 for fabricated structural steel to 58.8 for logging camps.¹⁹ The worst seventeen industries had rates in excess of 30.2. Again, these are nationwide averages within a particular industry, and do not reflect the wide variation in rates among reporting units.

Furthermore, there are wide disparities between the states, even in their average rates for all manufacturing. In 1967, for example, the available rates ranged from 8.0 in South Carolina to 41.5 in Wyoming.²⁰ These variations will be explained below, but it should be clear that sufficient variation exists in reported rates to call into question the value of national averages in determining the need for regulation.

¹⁷ A Bureau of Labor Statistics (B.L.S.) statistic, reprinted in *MAINE INDUSTRIAL INJURIES*, 1951.

¹⁸ *Hearings on S. 2864*, *supra* note 9. BUREAU OF LABOR STATISTICS, U.S. DEPT. OF LABOR, *HANDBOOK OF LABOR STATISTICS*, Bulletin no. 1555, 1967; reprinted at 139-161.

¹⁹ *Id.* Table of industries, named and ranked at 560.

²⁰ See Table 8, App. A.

B. A Proposed Frequency Rate Goal

The isolated examination of injury frequency rates will not reveal whether anything needs to be done to reduce these rates. Recognizing that workers must assume different degrees of risk in different industries and in different occupations, it follows that ideal rates must vary accordingly. A determination of frequency rate goals for each industry would require an analysis of industrial conditions which is beyond the scope of this article. However, in determining the need for regulation of industrial safety, the establishment of goals in the form of minimum acceptable levels of injury frequency offers a valuable approach.

The Federal Government has already adopted this approach to a limited extent in the Mission Safety-70 program for large federal agencies.²¹ Goal rates have been established and tied to a time limit for achievement. For example, in the Post Office, which is the largest federal agency, the 1966 frequency rate was 14.4, and the goal to be achieved by 1970 is 13.2.²² Presumably, the goal will be reevaluated in 1970. It must be re-emphasized, however, that this article cannot attempt to set ideal goals for specific industries. Nonetheless, it seems necessary to determine an acceptable level of injury frequency for American industry in general in order to gain an appropriate perspective of the magnitude of danger on the job.

Table 1 in Appendix A presents a comparison of frequency rates for all workers in 1967 according to the type of activity in which they were involved. The table shows that frequency rates on the job were about twice as high as in the home for these workers. It is understandable that a worker might be more likely to be injured on the job than at home in that he is likely to be more active on the job.

One is tempted to justify any on-the-job frequency rate on the ground that a worker voluntarily subjects himself to that degree of danger. Such a justification assumes that a worker has complete freedom of job choice and, furthermore, that he is aware of the

²¹ U.S. WAGES AND LABOR STANDARDS ADMINISTRATION, U.S. DEPT. OF LABOR, SAFETY ENGINEERING AND PROGRAM SERVICES—FISCAL YEAR 1967, at 15, (Injury frequency rate data are from the Bureau of Employees' Compensation.)

²² *Id.*

danger to which he is subjecting himself. However, these assumptions are unwarranted. Rather, the danger level which a worker finds acceptable is more likely to be reflected by what he does of his own free will off the job. A significant amount of his away-from-work time, however, is spent in motor vehicles. Since transportation is a necessity, one cannot attribute to the worker any satisfaction with the danger level on the highway, which appears from table 1 in Appendix A to be, on the average, a greater hazard to the worker than his job. Thus, the only degree of danger to which a worker *voluntarily* subjects himself is that degree of danger which exists in the home. This provides the most accurate indication of the danger level, as reflected by frequency rates, that he would find acceptable on the job.²³

Accordingly, it seems realistic to set as a general goal the degree of safety in the home, which in 1967 was a 7.1 frequency rate. Any industrial frequency rate approximating or below this rate would certainly be satisfactory. But what is the *maximum* acceptable injury frequency rate? This point is one upon which reasonable men could differ, and the rate clearly would vary among industries. These maximum rates should be determined after careful study by safety planners. However, to the extent that higher rate goals are deemed acceptable, we are compromising our desire to obtain more safety with the recognition that the industry involved is hazardous. Dangers inherent to an industry should not be overlooked; attempts must be made to eliminate them, even at the expense of extensive reorganization of production methods. In general, therefore, the goal should be to make on-the-job conditions as safe as those to which a worker voluntarily exposes himself in his home.

C. The Need for Improvement

With respect to these general goals, the most recent data show a clearly unacceptable rate of injury frequency. The national

²³ It must be reiterated, however, that since he may be more active on the job, and may be involved in an occupation with some degree of inherent risk to his safety, the worker may expect that his job will be more dangerous. Indeed, he may regard this factor as a part of the justification for his compensation. Regardless of the workers' expectations, it must be conceded that some occupations, such as construction or underground mining, could not reasonably be regulated to achieve that degree of safety.

average for all manufacturing indicates that accidents occur about twice as often on the job as at home.²⁴ The national average for the worst twenty-five industries was far from acceptable. A glance at table 8 in Appendix A reveals that in manufacturing industries, only one reporting state, South Carolina, had an average rate low enough to indicate that there are probably no more than a relatively small number of the state's reporting units in which significant improvement is necessary.²⁵ The rest of the states have frequency rate averages which indicate that much improvement will be required in order to reach the suggested rate goal. It must be reiterated that the averages merely indicate the probable proportion of units which already have fairly acceptable rates. The spread in rates is quite high in every state. Table 2 in Appendix A shows a typical example of how rates vary according to two factors: industry and unit size.

The implications of table 2 are clear. (1) Even in those industrial classifications with the best safety records, there are units and size classifications of units which require improvement. (2) Very few of the industrial classifications have acceptable *averages* for all reporting units. In short, most industries and portions of industries have alarming records relative to our general safety goals. Moreover, it must be emphasized that table 2 presents data for a state with a better-than-average frequency rate for all manufacturing.²⁶

III. Factors Influencing Injury Rates

A reasonable introductory proposition is that industrial safety ought to be regulable to as great an extent as any other human activity. This section will, however, examine: (a) the immediate

²⁴ See Table 1, App. A.

²⁵ With an average frequency rate of 8.0, clearly at least one-half of the workers are working at a safety level close to our goal in South Carolina. However, there may still be a considerable number of plants with much higher frequency rates. Apparently, this would not be a very great proportion of the total. In fact, in 1967, 5% of the workers were in industrial units employing 5-50 workers. The average frequency rate in this group was 18.8. The rate was 21.3 in the 51-100 employee group, another 5% of the work force. Therefore, a significant improvement in the average frequency rate would seem to be called for in South Carolina manufacturing units employing some 10% of the manufacturing work force. See, S.C. DEPT. OF LABOR, S.C. WORK INJURIES, 1967, at 3.

²⁶ See Table 9, App. A.

causes of injuries, to see if there might be some agencies, instruments or other causes inherently insusceptible to regulation, (b) external economic factors influencing the level of injury frequency and the extent to which they might hamper attempts to reduce frequency rates, and (c) the effect of unit size upon the ability of management to regulate safety within the unit.

A. The Agencies, or Immediate Causes, of Injuries

1. Carelessness

Any discussion of the causes of accidents must be tempered by the realization that the precise cause of a particular accident will often be difficult to identify.²⁷

Nonetheless, one argument against increasing government regulation, and particularly against the entry of the Federal Government into this area, posits that carelessness is a primary source of industrial accidents. Therefore, the argument continues, education aimed at encouraging workers to perform their functions in a safer manner, rather than increased regulation, is required. The minority report of the House Committee on Education and Labor, which rejected the Occupational Safety and Health Act of 1968 and eventually carried the day, stressed the following point:

There is no reason to believe that federal controls would materially reduce the rate of such accidents or injuries. Safety authorities have estimated that three-quarters of accidents on the job result from unsafe acts rather than unsafe conditions.²⁸

²⁷ *Hearings on S. 2864, supra* note 9. Statement of A.C. Blackman, Secretary and Managing Director of the American Society of Safety Engineers at 216. Mr. Blackman points out that any accident is a complex occurrence.

When an accident does occur, it is extremely difficult and in many cases almost impossible to isolate any one single factor which could be said to be 'the cause' of the accident and the resulting injury. Usually there are a number of factors each of which could have contributed to some extent to the final result. In many cases, the elimination of any one of these factors would have prevented the accident and the resulting injury.

²⁸ H.R. REP. NO. 1720, 90th Cong. 2d Sess. at 45 (minority report).

The accuracy of (a) this estimate of the pervasiveness of carelessness, and (b) the assumption that carelessness is not regulable, is open to serious question.

(a) Pennsylvania is one of the few states which has published an analysis of the causes of the state's industrial injury experience. The results of that study indicate that carelessness is probably a significant factor in industrial accidents. With respect to an analysis of the general causes of accidents, the following statement was made:

Similar to earlier years, unsafe acts and conditions produced between 95 and 96 per cent of all disabling injuries in 1967. Again, the acts of using equipment unsafely and unnecessary exposure to danger prevailed and caused 84.0 per cent of all accidents.²⁹

At least 26 per cent of these accidents are directly attributable to carelessness.³⁰ Beyond that figure, however, the degree of importance of carelessness was indeterminable.³¹ Another Pennsylvania study, entitled "leading agencies involved," pointed out that vehicles were the leading agency (or instrument, as opposed to cause) involved in non-fatal (13.9%) and fatal (33%) injuries.³² What might be referred to as "pure carelessness" was that category in which the persons themselves constituted the agency causing the injuries. This category ranked tenth (2.4%) in non-fatal cases, and second (14.4%) in fatal cases.

While these data indicate that carelessness is a significant cause of accidents, they nonetheless call into question the sweeping estimate made by the House Labor and Education Committee minority.

(b) Moreover, the relevance of the degree to which carelessness is attributed to accident causation must be seriously questioned. First, it is clear that most accidents in some way or another involve an agency other than the person himself, such as a machine or a vehicle. Second, it is easy to conclude that since

²⁹ BUREAU OF RESEARCH & STATISTICS, PA. DEPT. OF LABOR & INDUSTRY, SUMMARY: WORK INJURIES IN PA., 1967, Nov. 1968, at 1.

³⁰ *Id.* at 4. Unnecessary exposure to danger, 23.6%; failure to use safety or protective devices, 2.4%.

³¹ *Id.* Using unsafe equipment or using equipment unsafely, 60.4%; overloading, crowding, poor arrangement, 7.1%.

³² *Id.*

an accident occurred, this agency was not properly used, and hence there was "carelessness." Thus, it is too easy to conclude that carelessness caused the accident even though it might nonetheless have been prevented if the agency itself had been designed to better protect the user.

It is important to remember that human beings cannot and will not work with computer-like efficiency. Much can be done to avoid "carelessness" by simply improving the safety characteristics of the agencies themselves. A "safe" machine is one which minimizes both the possibility of careless use and the possibility that careless operation will result in an injury. It follows that safer machines will reduce injury rates even in areas where the injury had been attributed to employee carelessness.

Furthermore, it is quite possible that the psychological aspects of carelessness are susceptible to regulatory techniques which could significantly reduce injury rates. Some existing state programs already deal with this facet of the problem. For example, the New Jersey Bureau of Engineering and Safety, Department of Labor and Industry, publishes a series of safety promotion bulletins, entitled *STAY ALERT—STAY ALIVE*. Forty-six of these bulletins were published and distributed in appropriate working units from April 1960 to November 1965. They contained case histories of accidents and provided safety lessons to be learned from these examples. The New Jersey State Industrial Safety Committee also sponsors a safety contest replete with eleven annual awards dinners. The firms with the best safety records are honored at the dinners.

It is difficult to assess the efficacy of such programs. It is equally difficult, however, to avoid the conclusion that there is something which can be done, within a regulatory scheme, to deal with the psychological aspects of safety, and to promote training in safe operations procedures. Indeed, it seems reasonable to believe that strict requirements on this level would have a marked impact.

Thus far the implementation of such techniques has been left, for the most part, to private initiative. Under the present regulatory system, the obligation of the company to conduct such safety activities is simply a moral obligation. Yet, where a company has shown an interest in promoting safety in this manner, its

program has been generally effective.³³ For example, Aluminum Company of America had an injury frequency rate of only about 2.2 in 1966, during 90 million man-hours of work in its twenty-six plants. This exceptional effort is largely due to Alcoa's program of safety-consciousness:

Alcoa seems determined to make employees more safety conscious. A foreman with eleven years' experience at the company's Cleveland Plant recently was discharged for violating a safety regulation. . . . Before a new employee starts work at an Alcoa plant, the company sends a letter to his wife or parents, urging them to remind him to work safely.³⁴

It seems reasonable, in light of the Alcoa experience, to conclude that regulation of the psychological aspect of carelessness is not inherently impossible, and that it may well produce beneficial results.

2. Other Agencies

It is even more clear that the use of the agents themselves, whether they be machines, toxic chemicals, or other instrumentalities, can be effectively regulated. This point has never been seriously questioned. Regulation of this aspect of the problem simply requires research and findings as to the best means of minimizing the hazards associated with particular agents.

B. Anti-Regulatory Economic Factors

This section will examine the possibility that there are external economic factors, not directly related to industrial safety, which may nonetheless make regulation impossible. Two economic factors might have a significant adverse impact upon safety conditions in industry: (1) technological advance, and (2) high levels of economic activity. These terms, of course, cover broad categories of problems and economic effects.

1. Technological Improvements

Technological improvements in production techniques and the increasing level of mechanization in industry have made the regu-

³³ See "The Relation of Unit Size to the Success of Regulation Activities," in text at 185.

³⁴ Vienna, *Safety Setback*, Wall St. J., Feb. 6, 1967, at 24. col. 1.

lation of industrial safety more difficult. As more complex machinery is introduced into industrial process, the number of new types of possible industrial accidents increases.

The kinds of machinery, equipment and buildings have changed drastically in the last fifty years, machines have become more complex, processes have changed, requiring a great deal less manual effort on the part of the individual, but a far greater knowledge of the machine or process which in turn requires a great deal more education on the part of the operator.³⁵

Problems have arisen with respect to occupational health which are worthy of note. One infamous example is the increase of pneumoconiosis ("black lung") among coal miners resulting from automation in the coal mines. However, problems abound with respect to toxic chemicals in general:

According to estimates of the U.S. Public Health Service, every twenty minutes a new and potentially toxic chemical is introduced into some industrial process. If such a chemical did have an adverse effect on human beings, this is usually determined later, after it has been used, and people get ill or die.³⁶

These examples of the effect of technological advance upon occupational safety suggest that viable regulation is difficult. But there is no reason to believe that effective regulation is impossible in the face of technological improvements. Rather, these examples merely suggest that safety regulation must not fail to continually anticipate and adapt to future needs.³⁷

There are frequent complaints that technological advances entail prohibitive costs with respect to the development and manufacture of safety devices which should accompany them. Inasmuch as the public interest is served by adopting these devices, public subsidization in appropriate cases does not seem out of line with a forward-looking safety regulation program.

³⁵ Blackman, *supra* note 27 at 216.

³⁶ Remarks of George H.R. Taylor, AFL-CIO Economist, before the 50th Annual Industrial Health Conference of the Section on Occupational Medicine, New York Academy of Medicine, Princeton, N.J., June 17, 1966, at 5.

³⁷ For a complete discussion of standards lag and revision procedures, see WAGE AND LABOR STANDARDS ADMINISTRATION, U.S. DEPT. OF LABOR, STATUS OF SAFETY STANDARDS, 1968, at 1-9.

2. *The General Level of Economic Activity*

Another anti-regulatory economic factor of considerable importance is the level of economic activity. Statistics reveal that there has been a generally increasing level of injury frequently corresponding to the economic boom of the 1960's.³⁸ The best statement of the relevance of this factor has been provided by Dr. Howard A. Rusk:

The continuing boom in our economy with the highest levels of employment in our history has been accompanied by a sharp increase in working accidents. . . . As the labor supply has declined and production schedules increased, employers have been forced to hire more inexperienced personnel. This has led to more accidents. Other accidents occur when workers are fatigued from working overtime or from moon-lighting.³⁹

At least one other commentator has found that "companies generally agree that inexperience is a prime cause behind the rise in on-the-job injuries."⁴⁰ Again, this factor will make the regulatory task more difficult. Yet one searches in vain for any reason why intense economic activity should render regulation impossible. The problem of overtime and fatigue may increase the possibility of human error. However, it should be re-emphasized that adequate safety devices and safely designed machines can nonetheless reduce the probability that error will result in accidents and injuries. The same is true with respect to inexperience. All workers are inexperienced in their jobs at one time or another. Proper education and training of the inexperienced worker should have lasting influence on injury rates, regardless of the proportion of inexperienced workers in the labor force at any given time.

In short, while both of the factors discussed in this section render regulation more difficult, they do not alter the *nature* of the regulatory task so as to make regulation impossible. Rather, they merely act to contribute to occupational hazards, increasing the

³⁸ See Table 4, App. A.

³⁹ Rusk, *Industrial Accidents*, New York Times, Sept. 1, 1968, at 55. This effect is noted also by W. Wirtz, *supra* note 10 at 63, and by Commissioner R. RICCI, SAFETY NEWS AND VIEWS, CONN. LABOR DEPT., Sept. 1968.

⁴⁰ Vienna, *supra* note 34 at 24.

necessity of improved regulation. These factors should be viewed as additional reasons for increased regulatory activity.

*C. The Relation of Unit Size to the
Success of Regulation Activities*

On the basis of the above discussion it can be fairly concluded that industrial safety is susceptible to regulation. Experience bears out this conclusion. If, within each industry, firms with larger plants (according to the number of employees) consistently have better safety records, it follows that this result is the effect of regulatory activities. The reason for this conclusion should be clear. The plant-size factor is *not* akin to the anti-regulatory economic factors discussed above; there is no inherent reason why variation of plant size should cause conditions to be more or less hazardous. In other words, there is no real evidence of safety "economies" or "diseconomies" of scale. It seems fair to conclude that throughout a given industry, the inherent danger level associated with a given job will be the same regardless of the size of the plant. If a large plant is safer, it is because management has made it safer through regulatory activities.

Table 2 in Appendix A indicates that the largest firms (the firms with the most employees) in each industry had average frequency rates which were satisfactory in most cases. Furthermore, those firms' rates were well below the highest rates for their respective industry, and always below the average for the entire industry. It must be emphasized that Virginia's experience in this regard was not atypical. Diagram 1 shows that there is a consistent pattern among the various states insofar as the largest firms invariably have the best average frequency rates. Furthermore, these rates are clearly acceptable according to the ultimate goals which we have suggested.

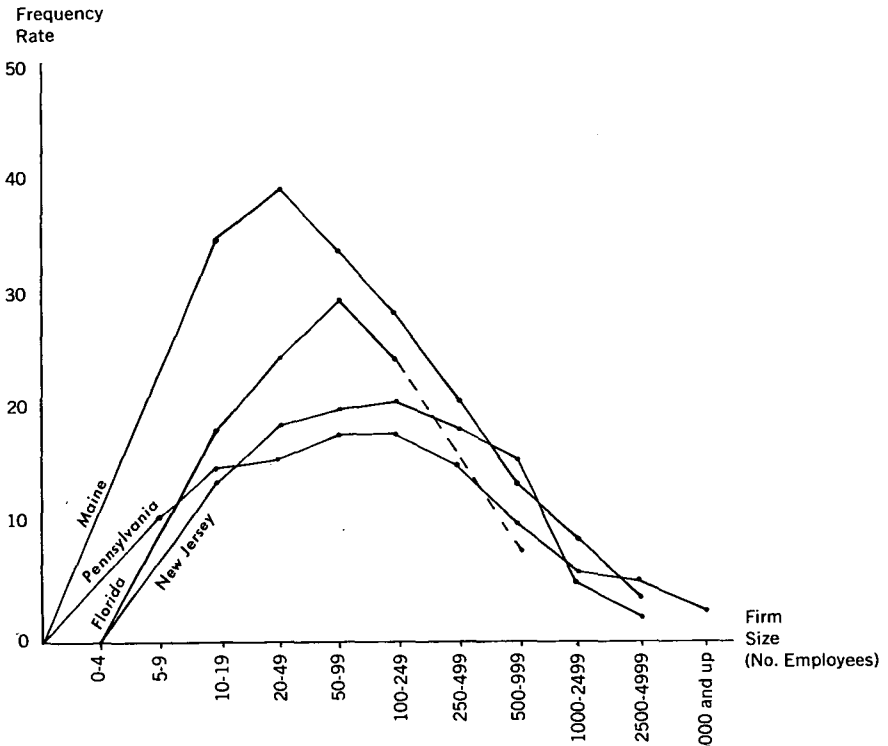
It is not difficult to understand why the large employer generally enjoys a much better safety record than the small employer. To the extent that the employer saves money on hiring, training and workmen's compensation, among other costs, by reducing injury rates, an employer would find it economically beneficial to reduce the number of accidents or occupational diseases in his plant. For the small employer, however, the cost of

safety programs may be prohibitive. On the other hand, the large employer can, and in fact does, do more to reduce injury frequency rates.

It is well established that the large employer enjoys lower accident rates than the small employer. Available statistics show that two-thirds of all industrial injuries occur in businesses with fewer than one hundred workers. The superior performance of the large employer is probably due to his greater financial ability to provide safe environmental factors, expert management, and staff specialists such as the safety engineer.⁴²

Diagram 1

Injury Rates by Size of Unit for All Manufacturing,
for Available States, 1967⁴¹



⁴¹ For the precise data, and data for South Carolina and Virginia, see Table 3, App. A.

⁴² Hedrian, *Incidence: A New Tool for Accident Analysis*, SAFETY MAINTENANCE MAGAZINE, May 1968, at 11-12.

It may be objected that the large employer might well be using a different production process, such as newer and better machines, and that this may contribute to the safer working environment. While this may be true, it should be noted that providing safe machines is simply one element among the broad range of activities which the author has been referring to as "safety regulation."

Of course, the converse may also be true; a new machine or production material employed by a large firm, while increasing productivity, may well be more dangerous to the health or safety of the employee. Lack of experience in operation of the new machine or process makes this effect likely. Therefore, low injury rates would indicate that considerable expense and research have been contributed to insuring a safer working environment.

One conclusion seems inescapable; large firms have been able to economically decrease frequency rates through safety regulation. The Alcoa experience was not anomolous. However, another conclusion seems equally inescapable; the same job is not being done in smaller plants, by management, government, or anyone else, although small plants presumably *could* be as safe as large ones.

IV. The Efficacy of Present Regulatory Activities

A. General Observations

Two observations about the current level of injury frequency have been noted. (1) While the rates tended to decline in the 1950's, they have held steady or increased slightly in the 1960's. (2) There are currently large industrial groups in which the injury rates are far higher than our ultimate goals indicate would be desirable. This latter observation was the basis for the author's conclusion that more needs to be done to insure safe working conditions. It was then demonstrated that industrial safety was not inherently unamenable to regulation, and that more can, in fact, be done.

Yet one should not condemn the present system of regulation at all levels (private, state and federal) merely because much more progress is necessary. Another measure of the effectiveness of the

present system is the extent to which it has caused injury rates to decline. The present system may well be satisfactory if industry is approaching acceptable rates at a reasonable speed.

Assessments of the system on this latter basis vary according to which base year one chooses for measuring improvement. It would seem highly illogical to cite improvement from 1916, or even 1950, as an example of the system's effectiveness, since it has not been able to reduce rates during the 1960's at all.⁴³ Acceptable injury rates simply are not yet being attained. Secretary Wirtz, noting the steady increase in frequency rates since 1958, stated that "[t]ime is working today not as the ally, but as the enemy, of occupational safety."⁴⁴

The purpose of this section will be to determine which of the current methods and levels of regulation—state, federal, or private—have had the greatest impact upon injury rates.

B. The Efficacy of Voluntary Safety Programs

Safety standards for voluntary programs are primarily developed in two ways. (1) "Consensus" standards are approved by two nationally recognized standards organizations—the United States of America Standards Institute (U.S.A.S.I.), and the National Fire Protection Association⁴⁵—through predominant voluntary acceptance by interest groups. (2) "Proprietary" standards are approved by various professional organizations and adopted primarily by individual plants.⁴⁶ These standards are often adopted by government regulatory agencies. There seems to be little difference between the standards and techniques operating voluntarily and those operating by law, where government regulation exists.

It is generally agreed that when private industry has seen fit to act to insure safe working conditions, it has been very successful. This conclusion is largely based upon a comparison of the injury

⁴³ HOUSE COMM. ON EDUCATION AND LABOR, Minority views on H.R. 17748, H.R. No. 1720 *supra* at 44; the minority used 1947 as the base year to measure improvement and concluded that "(c)ertainly the evidence that we have shows that excellent progress is being made in the field of industrial health and safety. . . ."

⁴⁴ Wirtz, *supra* note 9 at 70.

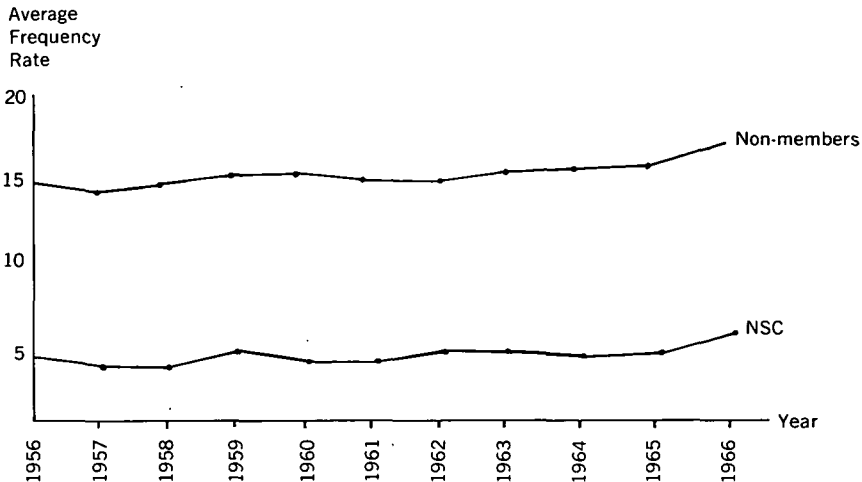
⁴⁵ STATUS OF SAFETY STANDARDS, *supra* note 37 at 1-9 and 103.

⁴⁶ *Id.* at 104.

frequency rates of members of the National Safety Council (NSC) to those of non-members.

Diagram 2

Injury Rates in Manufacturing—NSC Members and Non-members⁴⁷



The achievements of NSC members have been used to buttress the assumption that something significant can be done in this area.⁴⁸ The possibility that NSC members belong to inherently safer industries is rebutted by specific industry comparisons between NSC members and non-members. In 1965, for example, the rates were 10.5 (NSC), 25.6 (Bureau of Labor Standards—BLS) in foundries; 4.2 (NSC), 12.5 (BLS) in Machinery; 4.5 (NSC), 19.7 (BLS) in sheet metal products, and 15.9 (NSC), 41.0 (BLS) in the lumber industry.⁴⁹

NSC members do have an excellent record. It is not clear, however, that this record is attributable to NSC membership. The members of NSC are 5,000 of the nation's largest firms,⁵⁰ and as has already been demonstrated, large firms generally have better safety records. Table 2 in Appendix A indicates that for two of the industries listed above, lumber and machinery, the difference between large and small firm rates in Virginia corresponds closely

⁴⁷ See Table 4, App. A, for precise data.

⁴⁸ Wirtz, *supra* note 9 at 64 and 71.

⁴⁹ *Id.*

⁵⁰ TIME, Feb. 7, 1969, *supra* note 8 at 77.

to the differences in rates based upon the NSC-BLS distinction. Both tables 2 and 3 indicate that the rates of large reporting units are roughly comparable to the NSC rates.

Thus NSC membership itself does not appear to be particularly significant. Even if it were significant, only 0.1 per cent of all U.S. manufacturers participate in its programs.⁵¹ Thus, the impact upon American industrial safety of NSC programs would not be great. Nonetheless, private initiative, for whatever reasons, has been singularly effective in this small number of cases in reducing frequency rates to more than acceptable levels.

C. The Influence of State Workmen's Compensation Laws

One widely-held view is that state workmen's compensation laws have a natural tendency to reduce injury frequency rates as employers are stimulated by the potential cost of these programs to insure safe working conditions. This theory is espoused by those opposed to increased safety legislation, and has been succinctly described by Thomas D. Nyhan:

The genius of [the workmen's compensation] system is that it gives employers a built-in financial incentive to reduce injuries. Under the rating system, there is a direct relationship between the employer's safety performance and the price he pays for his compensation insurance. This built-in financial incentive has made the prevention of accidents an integral part of the competitive business enterprise system.⁵²

The prevalence and intuitive acceptability of this theory necessitates a careful and extensive evaluation of the impact of workmen's compensation on injury frequency, with an eye toward the possibility of further reductions in frequency rates through increased workmen's compensation benefits.

It is evident that under this system an employer would benefit financially by operating at an injury level at which his workmen's compensation expenses are low. However, it must be remembered, in light of the economist's marginal-cost analysis, that a

⁵¹ *Id.* at 77.

⁵² *Hearings on S. 2864, supra* note 9 at 713, statement of Thomas D. Nyhan.

point is reached at which the additional dollar spent on safety measures will be less than compensated for by the decrease in workmen's compensation costs. Therefore Mr. Nyhan's theory, from the point of view of pure incentive based upon profit motivation, does not hold true over the entire range of injury frequency rates. A point will always be reached at which it is no longer profitable to increase attempts to reduce injury rates.

Keeping this fact in mind, the author will analyze the degree of incentive to reduce frequency rates which workmen's compensation has provided, and will analyze the actual impact of workmen's compensation on frequency rates. It will then be possible to determine whether an increase in compensation rates would be an effective approach to further promotion of industrial safety.

1. Workmen's Compensation As An Incentive To Reduce Injury Frequency Rates

Twenty-seven states and the District of Columbia have compulsory workmen's compensation for most of the workers covered, while twenty-three states have elective systems.⁵³ In the elective states, if an employer rejects the system, he loses, in actions brought by injured workmen, the common-law defenses of assumption of risk, the fellow-servant doctrine, and contributory negligence. Under elective systems, it is more advantageous for an employer to elect workmen's compensation since the injured worker may well collect much less under the system than his lost income alone. For example, in Indiana, a permanently and totally disabled worker with a present salary of \$5,600 and an expected working life of thirty more years would obtain a maximum of \$2,340 annually, only 41.4% of his present salary, and only 17.1% of his expected salary in the thirtieth year.⁵⁴ In Alabama, a worker would receive even less (\$1,976 annually) and payments would terminate after five years. This may partially explain why employers of 74% of the non-agricultural work force in Indiana,

⁵³ *Id.* at 277-314. BUREAU OF LABOR STANDARDS, U.S. DEP'T. OF LABOR. SUMMARY OF STATE WORKMEN'S COMPENSATION LAWS, LABOR LAW SERIES NO. 10, January 1967, at 2.

⁵⁴ Smedley, *The Failure of Workmen's Compensation Laws*, AFL-CIO AMERICAN FEDERATIONIST, March 1966, at 15.

and 69% in Alabama, elected workmen's compensation in 1964.⁵⁵ Among nearly all the states utilizing either compulsory or elective systems, the ratio of maximum temporary total disability benefits to average weekly wages has declined steadily since 1940, often by about fifty per cent. In 1966 this ratio for a married worker with two dependent children was over one hundred per cent in only two states.⁵⁶ The remaining states ranged from ten to sixty-nine per cent with a median around forty-five per cent.

These facts indicate that workmen's compensation is significantly undercompensating the worker relative to his wage loss, and that this undercompensation is generally increasing. Regardless of whether the incentive to decrease injury rates provided by the workmen's compensation system is also declining, it does not appear that the absolute level of incentive is nearly as great as would exist when an employer elects to remain out of the system, and has greater liability in case of accident or death.⁵⁷

2. Actual Impact of Workmen's Compensation Upon Injury Frequency Rates

If the apparently small incentive to provide safe working conditions motivated by the presently inadequate workmen's compensation system has had a significant impact upon injury rates, then perhaps an increase in workmen's compensation coverage and benefits would effect a decline in these rates. The author has used several analytical techniques in order to determine whether there has been much of an impact.

One approach was to determine whether states with lower injury frequency rates had stronger workmen's compensation systems. If this were generally true, then it would be possible to

⁵⁵ BUREAU OF LABOR STANDARDS, U.S. DEPT. OF LABOR, WORKMEN'S COMPENSATION, BULLETIN 279, 1966, at 71.

⁵⁶ The two states are Arizona and Hawaii. Javits, Senator J., 26 CONG. REC. E4301, May 16, 1968; from a table prepared by the U.S. Chamber of Commerce.

⁵⁷ One may wonder why any employer would fail to adopt the system. First, there may be industries or industrial units in which injuries are so infrequent and inexpensive that the administrative costs of workmen's compensation would exceed them. Second, small firms with less than from three to fifteen employees are exempt from coverage in twenty-seven states. AFL-CIO AMERICAN FEDERATIONIST, *supra* note 54. This would account for a large number of workers in some of the elective states. It appears, however, that nearly all employers elect the system when there is a choice. The percentage of workers covered is on the average about the same for elective and compulsory states. WORKMEN'S COMPENSATION, *supra* note 55.

hypothesize that workmen's compensation has a greater impact upon rates than any other factor. If not, such a hypothesis is clearly impossible.

One indication of the strength of a state's workmen's compensation system might be the percentage of the non-agricultural work force covered. Table 5 in Appendix A compares this percentage with the available injury frequency rates of various states. The comparison reveals no significant relationship between these two factors.⁵⁸

Table 11 in Appendix A presents comparisons of various other possible measures of workmen's compensation effectiveness with frequency rates for four states having clearly different safety records. While some of the factors show a certain relationship to frequency rates, it is not possible to explain the differences in rates on the basis of the strength of the workmen's compensation systems.

Another method of measuring the possible effect of workmen's compensation is to determine whether any reduction in rates has resulted from the advent or increase of compensation in specific states. Pennsylvania is the only state which has made information available upon which such a study could be based. The Pennsylvania authorities tend to favor the interpretation that compensation has had a significant effect upon rates, looking at long-range trends:

During the fifty-two year history of the Pennsylvania Workmen's Compensation Law the compensation awarded 3,097,652 work injuries and occupational disease cases amounted to \$1,033,487,985.

The most significant trend during these years has been a decrease in number of work injuries accompanied by a rise in compensation. The drop in number of compensated job mishaps reflects declines in number of fatalities and temporary disabilities which in 1967 were less than in 1916 by 76.7

⁵⁸ This may be explained in part by the fact that no account is taken of the difference in the type of industries in each state. Some states may have, on the average, less dangerous industries. For example, Wyoming's high frequency rate is largely due to a 115.0 rate in lumber for 1967. Also, there is a possibility that frequency rates are more understated in some states than in others. But the lack of any significant relationship at all seems to indicate that the differences in coverage among the states is not an important factor.

per cent and 36.5 per cent, respectively. With more compensation appropriated by law through the years, average benefits increased between 1916 and 1967 from \$2,383 to \$19,266 per fatal case and from \$38 to \$397 per temporary injury award. Permanent disabilities averaged \$1,185 in 1916 and \$2,177 in 1967.⁵⁹

While this statement implies that increased compensation has effected a decrease in injury rates, too many other factors might explain changes in rates over the last fifty-two years. A definite causal relationship cannot be accurately determined from this type of time-series comparison.

As table 6 in Appendix A indicates, recent experience in Pennsylvania suggests that other factors are of more significant influence. Pennsylvania frequency rates have maintained a fairly constant increase since 1961. Over the same period, recovery per accident has also risen. There is no indication that compensation was stated in constant dollars, so it must be assumed that the amounts are stated in actual dollars. This means that compensation in constant dollars has remained about the same throughout the 1960's, assuming about a two per cent annual increase in the cost of living over this period. There is, therefore, no real change in compensation upon which a conclusion of lack of impact upon injury rates can be based. The same is true in the case of occupational disease. However, the number of disease cases has halved between 1965 and 1967, while the actual dollar value per case was declining. Furthermore, there was a marked increase in the number of cases from 1956 to 1960, during which period the compensation per case was also increasing. These facts indicate that the variation in cost of an instance of occupational disease does not appear to have resulted in a corresponding variation in effective efforts to reduce the incidence of occupational disease.

In short, the little evidence which is available on the effect of workmen's compensation is spotty and inconclusive. It does not indicate in any way a significant impact upon frequency rates.

⁵⁹ PA. DEPT. OF LABOR AND INDUSTRY, SUMMARY: COMPENSABLE WORK INJURIES IN PENNSYLVANIA, 1967, at 2.

3. *Cost-Analysis of the Impact of an Increase in Workmen's Compensation*

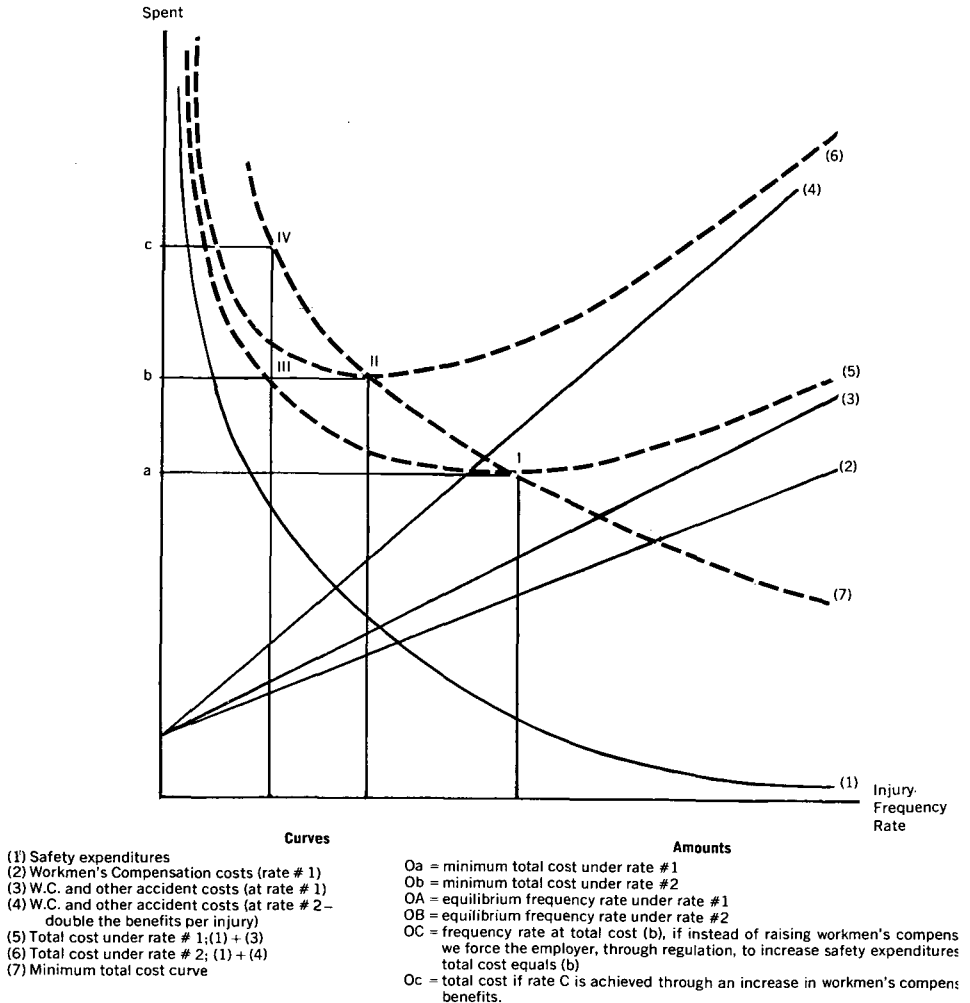
Theoretically, one should not expect an increase in workmen's compensation rates to significantly lower the frequency rates. While a significant increase in the rates of compensation may considerably benefit the individual injured workers, the incentive to reduce frequency rates produced by increased compensation rates would not be significant from a cost analysis standpoint.

Diagram 3 demonstrates that since an individual employer is interested in minimizing the total cost of injuries, he must take into account the cost of safety programs. While the costs suffered as a *result* of injuries—workmen's compensation, replacement and training of personnel, lost production, and so forth—are likely to increase in a linear fashion as the frequency rate increases, the cost of injury prevention is nonetheless subject to diminishing returns. As more money is spent, the injury rate is likely to decline. However, as the frequency rate approaches zero, additional expenditures will have less effect per dollar upon that rate than those dollars spent on safety when the rate was higher. The total cost, at any frequency rate, will be the sum of all of these costs. Assuming that an employer minimizes these costs if he can, a doubling of workmen's compensation benefits will not induce a halving of the frequency rate. Rather, the induced decrease in the frequency rate will be considerably less than that.

Diagram 3 also demonstrates that in order to decrease the injury frequency rate to OB from OA, in the event of an increase in workmen's compensation benefits, the employer must increase his total cost from Oa to OB to continue his minimization of costs. As a practical matter, the minimum total costs get very high if increased benefits to reduce injury rates much below OB are relied upon. Alternatively, if it is decided to enforce standards against this hypothetical employer, which would cause him to increase his safety spending, while leaving workmen's compensation rates at the initial level so that his total costs were Ob, the injury rate would be reduced to OC by the shift from point I to point III on his total cost curve. By raising the compensation

Diagram 3

A Cost Analysis of the Effect Upon Injury Frequency Rates
of a Doubling of Workmen's Compensation Benefits.



rates, assuming that the employer minimizes his costs at Ob, the injury rate has been reduced only to OB. By increasing compensation, in order to lower the rates to OC, the employer is required to minimize his costs at OC, a much higher cost to him. In short, when increasing compensation rates to reduce frequency rates are relied upon, in order to lower frequency rates the employer must spend increasingly more on safety and accident prevention. He will be reluctant to spend the additional amounts required unless compensation rates are so high that it would cost him more not to do so. On the other hand, if only the safety spending which would reduce the rates to the desired level were required, the employer would be forced off his minimum cost curve, but would be left with smaller compensation costs. Thus the same result is achieved at lower cost to the employer.

In many cases, it would be desirable to lower injury rates by at least one-half, and in some cases, by much more, in order to achieve our goal. In most cases, it may also be desirable from the viewpoint of the injured workers themselves to double the compensation rates most workers are currently enjoying. It is doubtful, however, whether compensation rates should be raised above the amount of lost wages. Therefore, even if the additional expense to the employer were considered unimportant, the reduction of frequency rates to the desired level through increased compensation could only be accomplished if the workers received significant windfalls in compensation.

It would therefore appear that an increase in workmen's compensation would not be the appropriate course of action to take in pursuance of our injury rate goals. Both data and theory indicate that compensation rates have little impact on injury rates, and cost analysis theory further indicates that enforcement of safety standards would be more economical than an increase in compensation rates in achieving any given reduction in injury frequency rates.

D. The Efficacy of State Safety Regulation

There appears to be no evidence of an appreciable influence of present workmen's compensation laws upon injury frequency rates. It would be better to proceed toward injury rate goals

through safety regulation rather than by increasing compensation benefits. However, it remains to be seen how effective state efforts at safety regulation have been. One immediate answer is that since rates have not been decreasing, state regulation has not been effective. Safety can be regulated, and one could perhaps conclude that if the states don't do the job, it remains for the Federal Government to step into their shoes. However, the *potential* effectiveness of state regulation bears on a determination of the Federal Government's proper role.

The author has found nothing to rebut the following statement:

I think it is demonstrable that state laws are very weak as drafted. The safety standards are most often written by the people that are supposed to observe them; namely, industry. There is an average of forty cents per worker per year spent for industrial safety and health by the States.⁶⁰

If state laws are generally weak, it would seem difficult to establish differences between them with respect to the efficacy of their programs. Blackman, in noting that data from New York, Florida, California, Wisconsin, and Illinois show increases in the frequency rates (in the case of Florida, fluctuations) from 1960 to 1966, states:

Since all the above mentioned states have ongoing programs, substantial safety regulations, and fairly adequate staffs to enforce the regulations, as well as offering consultant type services to employers, it is reasonable to conclude that the existence of regulations is not a great factor in changing injury frequency.⁶¹

Blackman feels that because falls, manual handling of objects, and vehicles, all significant agencies of accidents, do not seem to be susceptible to regulation, it may be difficult to further reduce injury rates. He forgets, however, that large firms, even in dangerous industries, have been able to reduce rates. It seems more likely that although these states have "ongoing programs" and "substantial safety regulations," they have simply not done enough to regulate safety.

⁶⁰ Nader, *Hearings on S. 2864*, *supra* note 15 at 511.

⁶¹ Blackman, *Hearings on S. 2864*, *supra* note 27 at 218-219.

Three aspects of state activity must be analyzed: (1) the degree of enforcement activity and enthusiasm, (2) the quality of the provisions for enforcement (each aspect must be viewed with respect to the overall quality among the states, the degree to which interstate differences are reflected in injury rate data, and the value of the comparisons in determining the quality of state activity), and (3) the quality of the codes and regulations.⁶²

One potential measure of the effect of state regulation is comparison of the states with respect to evidence of enforcement zeal. Table 7 in Appendix A compares state safety budgets, on the average, for all states grouped according to their death rates. This table was presented by the Secretary of Labor as significant evidence that higher levels of state expenditure on safety do have a marked impact upon death rates, and therefore have a marked impact upon the safety of working conditions.

This is very convincing until one realizes that this chart may be specially constructed to (a) take account of the death rate and ignore the other types of disabling injuries, (b) average, rather than classify, the budgets, so that any range of differences between states would not be apparent, and (c) pick the cutoff points in state groupings so that the budget data would reflect the greatest differences in averages. Whatever inverse relationship does exist between the variables in table 7, it has surely been maximized.

If one examines recent overall frequency rates in manufacturing for a variety of states, and compares them with safety expenditures per non-agricultural worker in these states, no such relationship exists. This is clearly demonstrated by Table 8. Other factors, such as a state's industrial mix and unit sizes, are more important in determining the level of injury frequency. For example, as has been noted, in Wyoming, the lumber industry has a very high frequency rate which raises the overall average for that state. In non-manufacturing industries, Wyoming's average rate was in fact quite respectable in 1967.⁶³ New York, New Jersey, Virginia and Indiana have practically identical

⁶² A comparison of frequency rates for all manufacturing as between the states is not very valuable, as noted earlier, because some states may have a higher concentration of more dangerous industries than others. Therefore, it will be beneficial to examine the injury rates of states in terms of standard industrial classifications and compare them on that basis.

⁶³ WYOMING DEPT. OF LABOR, WYOMING INJURY REPORT, 1967.

injury frequency rates, and yet they range from fifth to forty-third in safety spending. Thus the size of the safety budget has no identifiable influence.

Tables 9 through 11 in Appendix A examine the general safety regulation picture (except for the comprehensiveness of safety standards) by (a) comparing the frequency rates of a number of states for specific industries, (b) ranking the states according to their injury rate levels in a few of these specific industries, and (c) comparing the safety programs of the worst states with those of the best. No apparent relationship exists between the various regulatory factors, or the general level of regulation and the corresponding frequency rate.

The comprehensiveness of state codes and standards should also be compared with frequency rates. Even with considerable expenditure and stringent enforcement provisions, the impact on frequency rates may be insignificant if weak or practically meaningless regulations are being applied. It is difficult to analyze this aspect of the problem. The various code provisions apply to a variety of industries, and then only to select aspects of each industry. Only infrequently does a code canvass an industry in one neat package. Therefore, it is almost impossible to make any judgments based upon individual codes and industries.

The U.S. Department of Labor has published Code Comparison Charts, however, which describe to some extent the quality of codes with respect to certain subjects of regulation, such as portable ladders, power presses, abrasive wheels and so forth, by comparing them to the comprehensiveness or strictness of the U.S.A.S.I. standards. These charts do not deal with enforcement provisions or activities such as those presented in table 11. Nor do they attempt to establish the importance of any particular provisions. Furthermore, no indication of the absolute level of standard adequacy is presented. The 125 U.S.A.S.I. standards which have thus far been published are considered minimum by the Institute. Therefore, the standards *themselves* may not be indicative of a level of regulation high enough to explain differences in frequency rates between states which have them, and those which do not.⁶⁴ Furthermore, the twenty Code

⁶⁴ As noted earlier, U.S.A.S.I. standards are merely consensus standards adopted voluntarily by the employers to whom they apply. See note 45 *supra* and accompanying text.

Comparison Charts which the Department of Labor supplied to the author, dated 1960-1963, show that only a handful of states had adopted even more than an insignificant percentage of these minimum standards. The conclusion, as of 1963, was clearly that state codes and standards were totally inadequate. More recent comparisons are not available, and therefore it is impossible to tell whether there has been any significant improvement over the last three or four years.⁶⁵

Unfortunately, even the published Code Comparison Charts are not sufficiently comprehensive to give a completely valid indication of the quality of a state's code system. There is some indication that the examined codes are directed only toward a relatively small group of the agencies involved in industrial accidents.

Because of the dubious value of any of the comparisons between the states with respect to code comprehensiveness and injury frequency rates, none of these comparisons are presented here.⁶⁶

In summary, there is little evidence that current differences among the states in frequency rates can be explained by differences in their codes, enforcement provisions or enthusiasm. The general level of these factors in all states is so inadequate that the normal economic influences largely control the frequency rate level.

As has been noted, some important authorities, such as Blackman, have concluded that the poor results of state regulation indicate an inherent inability to further lower injury frequency rates. Roy G. Benson, manager of N.S.C.'s industrial safety department, has stated that "[t]his is a management rather than a

⁶⁵ See WAGE AND LABOR STANDARDS ADMINISTRATION., U.S. DEPT. OF LABOR, DIRECTORY AND INDEX OF SAFETY AND HEALTH LAWS AND CODES This publication, undated, was only recently published and was received by the author September 3, 1969. While it is the most comprehensive list of state safety codes and regulations available, it does nothing more than index them. It does not compare them to U.S.A.S.I. standards.

⁶⁶ It is interesting to note, however, that to some extent those states with lower frequency rates in the early 1960's did appear to have superior codes. Pennsylvania had the best set of codes relative to U.S.A.S.I. standards in the construction industry, and has significantly lower frequency rates in construction than other states with available construction industry frequency rates for this period. However, Florida, which has high rates in general despite relative superiority in most other aspects of safety regulation, also has the highest frequency rates in construction despite a relatively comprehensive set of construction codes.

regulatory problem. The biggest difficulty is in worker education.”⁶⁷ His bias toward private initiative is, however, apparent. Management has conflicting interests; the safety interest is somewhat at odds with the profit maximization motive. Furthermore, it is clear that safety education can be made a part of any regulatory scheme, as is currently the case in some states.

Adequate safety can be provided with appropriate regulation. However, no proof of that fact is to be gleaned from the performance of any particular state. Unfortunately, available information does not indicate which aspects of a government regulatory scheme might be the most important and influential. What the data do indicate is that all of the states have inadequate regulatory schemes in all of their important aspects. No significant differences between state performances are to be found; no states have stepped forward with particularly exemplary records, and the injury rates everywhere continue to rise.

E. The Federal Safety Record

There is at least some basis for a comparison of the Federal Government's effort with that of the states. The problem of safety regulation is, of course, the same for both the Federal Government and the states. But where the Federal Government has been more successful, there are indications that a difference in approach or in enthusiasm of regulation is the reason for that success. This section will, therefore, attempt to evaluate the success of federal projects, where the evidence has rendered such a determination possible.

When the Federal Government has been active in safety regulation, it seems to have achieved positive results. In large federal agencies covered by U.S. Mission Safety-70, the injury rates in six of the eight agencies covered by the program have decreased since 1960, and rates have decreased in five of the agencies since 1956.⁶⁸ The most dramatic results have been obtained among workers covered by the Longshoremen's and Harbor Workers' Compensation Act, 1958:

In shipyards, the injury frequency rate per million man-hours worked in 1960 was

⁶⁷ TIME, Feb. 7, 1969, *supra* note 8 at 77.

⁶⁸ SAFETY ENGINEERING AND PROGRAM SERVICES, *supra* note 21 at 15.

thirty-eight disabling injuries. In longshoring, it was 132. Compare these figures with the annual rate as indicated by the first nine months of 1967, and the thirty-eight rate has dropped to 21.7. The 132 rate has dropped to 82.⁶⁹

It is not possible to determine precisely the extent of improvement in the records of industrial units working under federal contract and subject to the Walsh-Healey Act. Walsh-Healey rates are not reported. And of course firms that have federal contracts do a considerable amount of work which is not covered by the Act. There is, however, sufficient evidence indicating that the Federal Government is more conscientious in its enforcement of Walsh-Healey provisions⁷⁰ than are the states.⁷¹

One explanation of the Federal Government's ability to reduce rates while the states have not done so may be the more stringent enforcement procedures of the federal acts. State laws impose fines for failure to *correct* a violation,⁷² while the penalties provided under federal law are generally broader in scope. Under section 41(f) of the Longshoremen's and Harbor Workers' Compensation Act, for example, a fine is assessable against any employer who "knowingly" violates the safety provisions.⁷³ Furthermore, the fine provided by this section is \$100-\$3,000, much greater than any provided by state laws.⁷⁴ The Walsh-Healey Act provides that any safety violation will result in a company being listed by the Comptroller General as ineligible for federal contracts for three years.⁷⁵ Under the McNamara-O'Hara Act, the Federal Government has the right to void contracts when safety

⁶⁹ Wirtz, *Hearings on S. 2864*, *supra* note 9; See also, "Safety Engineering and Program Services," *supra* note 21 at 7.

⁷⁰ In fiscal 1963, federal authorities inspected 2,136 establishments, while state authorities inspected 2,384 establishments. Only 846 of these establishments were found in violation of the Act by the state inspectors, while the federal inspectors found 1,830 violations. Report by Wage and Hour and Public Contracts Division, U.S. Dept. of Labor. Findings in regular and special safety and health inspections made under the Public Contracts Act, fiscal year 1963; reprinted as appendix to remarks of George H.R. Taylor, *supra* note 36.

⁷¹ States help to enforce the Walsh-Healey provisions by virtue of the fact that compliance with state health and safety provisions is *prima facie* evidence of compliance with the Act. See note 4 *supra* and accompanying text.

⁷² Wirtz, *Hearings on S. 2864*, *supra* note 9 at 74.

⁷³ 33 U.S.C. 941, 1958.

⁷⁴ See Table 11, App. A.

⁷⁵ Walsh-Healey Act, 41 U.S.C. § 37, 1936.

violations occur in their performance.⁷⁶ These types of penalties are more severe than anything the states now have, and they emphasize the violation itself, rather than simply a failure to correct.

It is difficult to draw any definitive conclusions concerning the inherent differences between the ability of the states and of the Federal Government to handle safety regulation. Nonetheless, the Federal Government has been able to effect a significant impact on frequency rates, apparently because there are stronger laws behind federal programs, and because of a more enthusiastic enforcement of these laws.

F. Conclusions on the Status of Regulatory Activities

The available evidence indicates that state regulation has not had any significant impact upon injury frequency rates. Neither workmen's compensation nor safety codes under state statutes have had any appreciable effect. In the case of workmen's compensation, it does not appear that significant increases in benefits on the state level would appreciably reduce frequency rates.⁷⁷

There is every reason to expect, however, that a significant increase in safety regulation would effect a decline in frequency rates. The Federal Government, although its present role is limited, has achieved better results than the states, and shown by its performance that government regulation can have an impact upon rates. The reason for the superior federal performance appears to lie, as previously noted, in the stronger enforcement provisions of the federal statutes, and the greater enthusiasm of the Department of Labor in enforcing the provisions of these statutes.

Arguments have been presented by some people to the effect that little can be done by anyone, except perhaps by management itself, to further reduce injury frequency rates. These arguments are generally based upon observation of increasing rates in the face of state activity. However, state activity, even at its best, appears stagnant. The results of the safety programs of large firms has indicated that rates can indeed be further reduced. There is, however, no reason to believe that *only* private initiative can do

⁷⁶ Section 4(b), McNamara-O'Hara Act, 41 U.S.C. § 351, 1965.

⁷⁷ A federal workmen's compensation act, which would accomplish the same result, would be inefficacious for the same reasons.

the job; the Federal Government's record belies this contention. There is no real difference between the techniques which the government authorities would employ in an intensive safety campaign and those currently in use by energetic establishments. It is merely a question of realizing a higher level of concern and initiative at the public level where, on the private level, this concern and initiative have stagnated.

It seems clear that this higher level of government involvement must be undertaken by the Federal Government. Thus far, in its limited involvement in safety regulation, the Federal Government has shown an ability to achieve results. The states, on the other hand, have not. The only logical explanation is that state legislatures and agencies have not been sufficiently committed to that end.

To suggest that these problems should be left to the states, since they could be effective if they wanted to, is to suggest that nothing at all be done. Safety regulation is a problem of national scope. To suggest that such a problem be left to the vagaries and inclinations of state government is to suggest that safety should not be considered a national problem. But the problem exists; it is real and begs solution. This should be reason enough for Congressional action. The preceding analysis has merely indicated a few of the means of control which might be necessary and effective in a comprehensive safety program. Any federal program could easily incorporate any of these elements.

There are additional reasons for insisting that the best course of action is to proceed on the federal level. Enforcement is impossible without effective standards. As has been noted, the only important private standards exist on a national level. The continued promotion of national safety standards seems the only feasible means of providing a comprehensive set of standards which could be applied in industry nationwide.

Likewise, diverse and decentralized state enforcement agencies and procedures are not likely to be as effective as a single agency deriving its authority and safety consciousness from a single national mandate. Local prejudices and loyalties would fail to have a political impact on enforcement undertaken at the national level.

V. A Proposal For Federal Action

The Occupational Safety and Health Act of 1968,⁷⁸ proposed by Senator Yarborough⁷⁹ and Representative O'Hara, along with fifteen other Congressmen⁸⁰ seems to have been the best solution suggested to date in light of the policy goals presented in this article. It was rejected possibly because the cost of the program was not adequately determined, and, more fundamentally, because Congress was not convinced that the problem needed additional government control, or that the federal action was appropriate.⁸¹ Other political considerations must have entered in as well, including the problem of scaling priorities for federal spending. Consideration of these political questions is beyond the scope of this article. Our analysis here is limited to a discussion of the best approach to an assumed policy goal of reducing injury frequency.

The 1968 bills provided for the establishment of safety and health standards applicable to any businesses affecting commerce. The Secretary of Labor, acting unilaterally or, in some cases, acting in conjunction with the Secretary of Health, Education and Welfare, would have considerable discretion in setting standards and in employing the services of private, state, and federal agencies in developing these standards. Moreover, the Secretary of Labor could delegate his authority to appropriate state agencies when considered feasible. Federal inspection of any employer unit covered by the act would be authorized upon presentation of credentials. Criminal penalties would be provided for interference with these inspection functions.

The Secretary would be empowered to issue cease and desist orders, on his own initiative, to prohibit the continuation of the violation or employment on unsafe premises. These orders would be enforceable in Federal District Courts. The Secretary could also obtain injunctions to the same effect from Federal District Courts. Review of the Secretary's orders in District Courts would

⁷⁸ See App. B for the text of the Occupational Safety and Health Act of 1968. The text includes the author's proposed amendments.

⁷⁹ S.2864, introduced.

⁸⁰ H.R. 14816, January 24, 1968.

⁸¹ See generally H.R. Report no. 1720, Minority views, *supra* note 43, at 34-ff.

be limited to a determination of whether working conditions posed a threat of imminent harm to employees. Thus, the judiciary would provide at least a limited check upon the Secretary's regulatory powers. State courts would be prevented from asserting jurisdiction over any occupational safety or health issue unless the Secretary declined jurisdiction in a specific area.⁸²

The Labor and HEW Secretaries would be empowered to create and supervise worker training programs involving recognition and avoidance of safety hazards. In light of the possibility of severe federal penalties, private safety programs of a similar nature would undoubtedly develop.

A civil penalty of a \$1,000 fine for each safety offense was stipulated. Each day of continuing failure to comply with the provisions or rules or an order of the Secretary would be a separate offense. Furthermore, a willful violation of the act would be a misdemeanor, punishable by imprisonment for not more than six months, or by a \$5,000 fine, or both. After the first offense, the penalties increase to imprisonment of one year and a fine of \$10,000. The Act would also apply to federal contracts, and, while not modifying or repealing the Walsh-Healey or McNamara-O'Hara Service-Contracts Act, it would supplement them.

Finally, the Secretary of Labor would have discretion to authorize grants to the states in furtherance of their own safety programs. This would enable the Federal Government to indirectly influence safety in areas to which its commerce power does not extend.

These provisions may seem harsh in some circumstances, and indeed they might be. The Secretary of Labor would be empowered, however, to create reasonable exemptions from the operations of the statute. It is clear that such an act would be effective only to the extent that it is forcefully administered. Its provisions would have to be fairly stringent in order to have the desired stimulus upon employers to increase safety. Without such a stimulus, we have no reason to expect that the state of industrial

⁸² The Secretary might, in his discretion, decline to assert jurisdiction over any occupational safety or health issue or class of issues governed by state law if he believed that the provisions of such state law and their enforcement carried out the provisions of the Act. *See App. B.*

safety will improve. For these reasons, the author finds the provisions of this bill eminently reasonable.

The Occupational Safety and Health Act of 1968, of course, never emerged from the Congressional committees which considered it. Business opposition to a general federal industrial safety law still runs high.⁸³ Currently, Congress is considering legislation proposed by President Nixon which is somewhat similar to the Johnson proposal, and probably stands about an equal chance of successful passage.⁸⁴

The Nixon proposal would establish a new federal agency which would "impose health and safety standards to protect American workers if the states failed to do so themselves."⁸⁵ This agency would be headed by a five-member Occupational Safety and Health Board which would be empowered to set broad safety requirements for most business establishments. The Board's members would be appointed for five-year terms, and at least three of the members of any Board would be required to possess "technical competence."⁸⁶

The role of Secretary of Labor is quite different under this proposal than under the Occupational Safety and Health Act:

The Secretary of Labor would be given the task of *enforcing* the standards. If he determined that a violation existed, he would petition the Board. The Board would then hold formal hearings and issue an appropriate order, which the Secretary of Labor could then enforce in court. (Emphasis added)⁸⁷

This reduced authority of the Secretary of Labor under this proposal would seem to make enforcement of safety regulations more tenuous and difficult than under the Johnson Administration bill. Under the Nixon proposal, a finding of a violation by *both* the Secretary and the Board would be required before enforcement would be possible. Moreover, the Secretary would be limited to court enforcement of a Board order, and would lack the power to unilaterally issue cease and desist orders. Thus, under

⁸³ New York Times, August 7, 1969, at 1, col. 7.

⁸⁴ *Id.* The Administration Bills are S-2788 and HR-13373, August 6, 1969. See CONG. Q. WEEKLY REPORT, *supra* note 7 at 1468.

⁸⁵ *Id.* at 1469.

⁸⁶ *Id.*

⁸⁷ 50 CCH LABOR LAW REP. Aug. 12, 1969, at 1.

the Nixon proposal, it would be more difficult to establish a violation in the first instance and subsequently to take measures to counteract it. The enforcement provisions of the Johnson bill therefore seem preferable.

The Nixon proposal further hampers enforcement by diluting the criminal penalties for violation which the 1968 bill contained.⁸⁸

Furthermore, the proposal is peculiarly structured so as to place as much emphasis as possible on state regulation. Whenever the Board is "satisfied" with the regulatory efforts of a specific state, it will not intervene within that state.⁸⁹ In light of the states' inability to achieve reductions in frequency rates, even where there are "satisfactory" programs, this emphasis on state regulation should be avoided. The need to improve conditions in particularly dangerous plants or industries which exist in even the most exemplary states should not be overlooked. The encouragement of state development of safety standards is also undesirable, since meaningful standards have been developed almost exclusively on a national level. However, the most troublesome aspect of the Nixon proposal, in light of its emphasis on state action, is the probability that the federal agency would fail to develop the zeal necessary to contribute substantially to industrial safety. For these reasons, the Johnson Administration's bill seems considerably preferable to the Nixon proposal.

The author would, however, propose the following additions to the Johnson proposal. (1) Since appropriate measures by some business establishments to comply with safety regulations might involve prohibitive expense, in the public interest of maintaining these establishments, occasional subsidies might be provided by the Federal Government to aid compliance with the act.⁹⁰ It

⁸⁸ A maximum fine is \$10,000, instead of \$1,000 per day, and the misdemeanor provisions are not included, CONG. Q. WEEKLY REP. *supra* note 7 at 1469.

⁸⁹ New York Times, August 7, 1969, at 1. At least three states are presumed to have "outstanding" safety programs: New York, Pennsylvania, and California. Presumably, regulation in at least these states would not be preempted. The bill further provides that any state can get federal aid in order to develop its own safety program, with 90% of the cost of standard development and 50% of enforcement costs supplied by the Federal Government. The Johnson administration bill, on the other hand, emphasizes Federal standards and would have the Secretary of Labor critically analyze a particular state law before declining jurisdiction. See note 75 *supra* and accompanying text.

⁹⁰ For example, Arch J. Alexander, former chief of the West Virginia Department of Mines, testified against proposed mining safety legislation before the House Educa-

would be important under this proposal, however, not to subsidize an employer's inefficiency. Subsidies should be based, rather, on substantial diseconomies of scale.⁹¹

(2) Many problems arise after new machinery or processes are introduced. A reasonable solution to this problem would be to require the vendors of new machinery or marketable production methods to include in their sales contracts warranties that their product complies with federal safety requirements. This would place the burden of non-compliance upon the vendor and would necessitate safety consciousness on his part. In conjunction with this proposal, regular inspection by federal inspectors should be implemented in order to assure fairly rapid discovery of any inadequacy inherent in new production techniques.⁹²

(3) It would seem reasonable to exempt employers from the application of the act when they have achieved an injury frequency level which is acceptable in terms of the safety goals of the particular industry.⁹³ Thus, achievement would be adequately rewarded. The Secretary would establish industry goals and the employers that have achieved, through whatever means, the safety consciousness and safe conditions to meet these goals would have thereby sufficiently met the public policy rationale underlying the act to justify being excluded from its provisions.

This proposal would be preferable to exempting *states* with "satisfactory" programs, since (a) emphasis is not placed on state activity, which may or may not adequately deal with a specific hazardous situation, and (b) the Federal Government will be directly concerned with each employer who has an unsatisfactory

tion and Labor Committee's General Subcommittee on Labor on April 16, 1969, on the grounds that small mines couldn't afford to meet the health and safety requirements of the act. CONG. Q. WEEKLY REP., March 14, 1969, at 377.

⁹¹ See App. B, proposed section 11. Another proposal worthy of consideration is the establishment of tax credits for compliance with burdensome safety requirements. This proposal, of course, would benefit all employers, not merely those for whom compliance with a particular safety requirement would be economically impossible.

⁹² See App. B, proposed section 3(c). It would seem that a process for federal approval of new production methods, before their introduction into actual working situations, might be a reasonable alternative to this proposal. This would not only stimulate thinking about safety problems before they can arise in actual working situations, but would also help to stimulate updating of safety standards to insure their currency. This proposal might, however, serve to create unreasonable delay in the introduction of new production processes or techniques.

⁹³ See App. B, proposed sections 2(a) (8) and 3(a).

safety record, even in states where the average frequency rate is low.

(4) The 1968 bill proposed that businesses covered by the Act report injury data to the Secretary of Labor. The bill should explicate that reporting of injury rates would be required, and that measurement of these rates would be subject to Federal standards and control.⁹⁴ This requirement would facilitate the establishment of national goals for specific industries, and enable the Secretary of Labor to grant specific exemptions based upon these injury rate goals.

(5) A private remedy in state court should be made available for the benefit of individual employees aggrieved by a violation of the Act.⁹⁵ Recovery under this provision should be based upon the degree of exposure to imminent danger. Such a provision would have the advantage of fairly compensating an employee who works under conditions which violate the Act even if his employer is exempt from the application of the Act by virtue of an overall frequency rate which falls below the industry goal set by the Secretary of Labor under the third proposal, *supra*.

Such a program would not be inexpensive. In 1967, the states spent \$65,173,400 on safety, which averaged only 40c per worker.⁹⁶ While the Federal Government could hope to stimulate state spending and private initiative under the proposed safety program, it would seem that considerably more than this amount would be necessary. Whether or not such spending is desirable in light of other important federal programs is not to be decided here. But should it be decided that it is in the national interest to establish reasonably safe working conditions for American workers, an effort of no less magnitude can be seriously contemplated.

⁹⁴ See App. B, proposed sections 6(b) and 3(a).

⁹⁵ See App. B, proposed Section 7(d).

⁹⁶ *Hearings on S. 2864, supra* note 9 at 894.

* VIRGINIA DEPT. OF LABOR AND INDUSTRY, DIVISION OF RESEARCH AND STATISTICS, VIRGINIA WORK INJURIES, 1967. Industries have been reordered by the author according to the frequency rates for all reporting units. See also BUREAU OF ENGINEERING AND SAFETY, N.J. DEPT. OF LABOR AND INDUSTRY WORK INJURIES IN N.J., 1966, at 8.

APPENDIX A

Table 1

WORKER FREQUENCY RATES, ON AND OFF THE JOB, 1967*

	<i>Deaths</i>	<i>Injuries</i>	<i>Death¹ Rate</i>	<i>Injury² Rate</i>	<i>Frequency³ Rate</i>
All accidents..... (Workers)	54,000	5,200,000	.12	11.9	12.0
At work.....	14,200	2,200,000	.10	14.7	14.8
Away from work.....	39,800	3,000,000	.14	10.5	10.6
Motor vehicle.....	24,600	9,000,000	.90	33.0	33.9
Public non- motor-vehicle.....	7,700	1,000,000	.07	9.7	9.8
Home.....	7,500	1,100,000	.05	7.0	7.1

* NAT. SAFETY COUNCIL, ACCIDENT FACTS, 1968, p. 25.

¹ deaths per million man-hours² disabling injuries (excepting deaths) per million man-hours³ sum of (1) and (2)

Table 2

INJURY FREQUENCY RATES FOR SELECTED MANUFACTURING
INDUSTRIES BY SIZE OF REPORTING UNIT
IN THE STATE OF VIRGINIA, 1967*

<i>According to number of employees</i>						
<i>Industry</i>	<i>All Reporting less than</i>		<i>Average I.F. rates for units with:</i>			
	<i>Units</i>	<i>50</i>	<i>50-99</i>	<i>100-249</i>	<i>250-499</i>	<i>500 or more</i>
All manufacturing.....	13.2	24.2	22.3	23.0	12.4	6.4
Chemical Prod.	2.5	19.6	4.9	8.5	6.9	1.2
Profess., contr., and Scientif. Inst.	4.0	6.9	n.a.	n.a.	n.a.	n.a.
Elec. Equip.	4.6	11.3	15.7	18.6	8.6	1.8
Textile Mill Prod.	6.6	11.7	12.4	8.9	12.7	4.5
Apparel and Rel. Prod. ...	7.4	2.8	6.8	6.0	8.4	6.9
Paper and Allied Prod. ...	8.3	14.5	19.6	11.1	9.2	5.4
Tobacco Manuf.	8.6	6.6	n.a.	19.0	11.6	6.2
Miscel. Manuf.	9.9	8.0	11.2	21.4	n.a.	n.a.
Printing, Pub., etc.	10.0	11.3	6.3	9.8	9.7	—
Transport. Equip.	12.9	33.3	35.2	35.9	30.3	10.6
Machinery.....	13.4	20.9	21.0	23.7	10.7	—
Leather Prod.	13.5	0.0	n.a.	39.8	3.4	—
Furniture and Fixtures....	15.5	15.6	21.6	31.2	18.0	11.7
Primary Metals.....	16.2	48.2	41.3	63.0	n.a.	5.1
Rubber and Plastics.....	16.4	16.4	n.a.	16.4	n.a.	14.1
Food and Kindred Prod. .	25.0	23.9	24.2	29.8	23.2	24.8
Stone, Clay and Glass.....	25.6	27.7	30.9	38.0	5.8	—
Fabric, Metal Prod.	27.4	35.0	47.0	38.5	17.2	—
Lumber and Wood Prod. .	35.5	36.8	43.6	30.6	15.4	—

Table 4
INJURY RATES IN MANUFACTURING—
NSC MEMBERS AND NON-MEMBERS*

<i>Year</i>	<i>NSC Freq. Rate</i>	<i>Nonmember Freq. Rate</i>
1956	4.8	15.0
1957	4.7	14.2
1958	4.6	14.5
1959	4.8	15.4
1960	4.3	15.3
1961	4.3	15.1
1962	4.5	15.1
1963	4.6	15.6
1964	4.5	16.5
1965	4.6	16.8
1966	5.1	17.5

* NAT'L. SAFETY COUNCIL, ACCIDENT FACTS, 1968, p. 27; non-member figures are the total U.S. experience projected from the U.S. Bureau of Labor Standards (BLS) rates, less experience of reporters to Nat'l. Safety Council.

Table 5
WORKMEN'S COMPENSATION COVERAGE AND INJURY
FREQUENCY RATES, AVAILABLE STATES

<i>State</i>	<i>% of workers covered by W.C. (1964)*</i>	<i>Frequency Rates:</i>	
		<i>1966</i>	<i>1967**</i>
Wisconsin	89	19.3	19.1
New York	87	13.7	—
Pennsylvania	87	11.2	11.5
New Jersey	86	13.5	—
Total — U.S.	84	12.8	12.9
Connecticut	83	11.5	11.8
Florida	77	17.5	19.3
Iowa	76	16.3	—
Virginia	76	13.1	13.2
Indiana	74	12.8	15.9
Maine	71	21.4	22.0
South Carolina	71	8.6	8.0
Arkansas	69	—	35.9
Texas	62	—	16.7
Wyoming	62	—	41.5

* *From WORKMEN'S COMPENSATION, SUPRA note 55.*

** *See, the injury reports of the various states.*

Table 6
**A SUMMARY OF COMPENSABLE WORK INJURY AND OCCUPATIONAL DISEASE CASES,
 AND OVERALL INJURY FREQUENCY RATES—PENNSYLVANIA,**
 (compensation in thousands of dollars)

Year	Cases	All Work Injuries Compens.	Comp./Case	Cases	All Occ. Disease Cases Comp.	Comp./Case	Indus. Inj. Freq. Rate
1916	71,293	\$7,534	\$106				
1917	50,068	6,455	129				
1918	69,920	11,640	167				
.	.	.	.				
.	.	.	.				
1956	44,088	19,060	434	663	\$2,465	\$3,720	10.10
1957	45,404	21,865	483	698	2,805	4,020	9.73
1958	40,498	20,811	514	900	4,093	4,550	9.16
1959	42,018	21,897	521	1,116	5,791	5,180	10.38
1960	41,248	21,638	524	2,028	12,401	6,020	9.77
1961	39,906	22,660	568	2,095	13,845	6,610	9.55
1962	42,311	24,301	574	3,657	31,422	8,580	9.64
1963	43,161	24,041	557	2,971	25,510	8,580	10.1
1964	46,505	26,688	573	3,386	30,432	8,980	10.5
1965	45,656	28,132	615	2,982	25,705	8,560	10.8
1966	45,929	30,278	658	2,207	18,108	8,220	11.2
1967	47,032	31,373	665	1,363	10,224	7,500	11.5

**Workmen's compensation data from, SUMMARY, COMPENSABLE WORK INJURIES IN PA., 1967, supra, p. 27. Frequency rates are for all industries, taken from the PA. INDUSTRIAL ACCIDENT SURVEY, for each reported year. The per-case compensation was computed by the author.*

TABLE 7
WORK DEATHS FALL AS SAFETY EXPENDITURES RISE*

<i>States Safety Budgets (Ave.)</i>	<i>States (grouped by death rates)</i>	<i>Work Deaths (Ave.)</i>
\$ 240,000	12 states (91-310)	110/thousand workers
270,000	12 states (55-80)	65/thousand workers
570,000	11 states (25-48)	38/thousand workers
1,100,000	10 states (under 25)	19/thousand workers

* *Hearings on S-2864, supra* note 9 at 77. Data is for 1966.

TABLE 8
COMPARISON OF STATES: INJURY FREQUENCY RATES IN MANUFACTURING (1965-67)
AND SAFETY ALLOCATION PER NON-AGRICULTURAL WORKER (1967)*

<i>State</i>	<i>1965</i>	<i>1966</i>	<i>1967</i>	<i>Ave (65-67)</i>	<i>Alloc./non-agric. worker</i>	<i>42 (rank)</i>
So. Car.	7.6	8.6	8.0	8.1	\$.07	18
Pa.	10.7	11.2	11.5	11.1	.34	16
Conn.	11.1	11.5	11.8	11.5	.34	5
N.Y.	12.4	13.7	n.a.	—	.74	12
N.J.	13.1	13.5	n.a.	—	.44	26
Va.	13.8	13.1	13.2	13.4	.23	43
Ind.	11.5	12.8	15.9	13.4	.05	38
Ala.	13.2	15.6	n.a.	—	.09	28
Iowa	16.6	16.3	n.a.	—	.21	44
Texas	n.a.	n.a.	16.7	—	.02	22
Florida	18.7	17.5	19.3	18.5	.30	11
Wisc.	17.6	19.3	19.1	18.6	.51	33
Maine	19.8	21.4	22.0	22.1	.18	14
Ark.	n.a.	n.a.	35.9	—	.40	(50)
Wym.	n.a.	n.a.	41.5	—	0	

*From state injury reports; *Hearings on S-2864, supra* note 9, at 196, 894-943.

TABLE 9
INJURY FREQUENCY RATES IN MANUFACTURING,
BY INDUSTRY, SELECTED STATES *

<i>Industry</i>	<i>1967*</i>							<i>Wyo.</i>
	<i>Ind.</i>	<i>N.Y.</i>	<i>Ark.</i>	<i>Fla.</i>	<i>Pa.</i>	<i>Conn.</i>	<i>Va.</i>	
Tobacco	—	—	—	7.0	8.0	—	9	—
Printing & Pub.	3.5	11.5	8.6	13.3	8.1	11.5	10	1.5
Chemicals	3.5	9.7	4.8	12.5	7.3	9.6	3	0.0
Leather	4.4	12.3	17.6	7.7	15.0	14.6	14	—
Ordinance	4.7	6.5	—	1.8	35.7	4.3	—	—
Petroleum (ref)	4.8	12.8	17.4	17.7	7.7	—	—	—
Elec. Mach.	5.3	9.6	11.2	10.6	6.2	8.9	4	—
Apparel	5.7	5.9	6.5	5.1	5.0	8.0	7	—
Instruments	8.7	6.6	—	6.3	5.9	8.3	4	—
Paper	11.4	18.2	21.2	13.7	16.0	22.3	8	—
Non-elec. Mach.	12.7	10.9	25.3	26.2	13.2	10.4	14	—
Transp. Equip.	15.7	16.9	38.9	19.3	11.9	6.0	—	—
All. Manuf.	15.9	13.7	35.9	19.3	11.8	11.8	13	41.5
Stone, Clay, glass	16.8	19.1	33.1	28.7	14.8	22.1	25	—
Fabric, metals	17.1	24.3	52.4	31.7	18.9	16.1	27	—
Food Products	17.3	25.8	28.4	30.9	21.5	27.9	25	22.7
Primary metals	20.7	19.2	56.0	27.2	9.3	26.4	16	—
Rubber & Plastics	21.9	21.8	27.2	14.8	18.3	11.8	17	—
Furniture	30.0	21.8	21.7	16.3	25.5	29.4	—	—
Textile Prod.	32.3	13.7	8.4	11.1	12.7	22.4	6	—
Lumber & wood	32.3	35.1	67.1	38.8	39.0	24.1	35	115.9

*New York Data is for 1966; see the various states injury reports. Underlined are rates for each of the three industries in each state with the lowest and highest rates.

TABLE 10
FREQUENCY RATES AND RANK AMONG EIGHT STATES, SPECIFIC INDUSTRIES,
1967*

<i>State</i>	<i>Food Prod.</i>	<i>Fabric. Metals</i>	<i>Lumber & Wood</i>	<i>Printing & Pub.</i>	<i>Paper</i>	<i>Primary Metals</i>
Indiana	17.3	17.1	32.3	3.5	11.4	20.7
(rank)	1	2	2	2	2	4
Pennsyl.	21.5	18.9	39.0	8.1	16.0	9.3
(rank)	3	3	6	3	4	1
New York	25.8	24.3	35.1	11.5	18.2	19.2
(rank)	5	4	4	6	5	3
Virginia	25	27	35	10	8	16
(rank)	4	5	4	5	1	2
Connecticut	27.9	16.1	24.1	11.5	22.3	26.4
(rank)	6	1	1	6	7	5
Arkansas	28.4	52.4	67.1	8.6	21.2	56.0
(rank)	7	7	7	4	6	7
Florida	30.9	31.7	38.8	13.3	13.7	27.2
(rank)	8	6	5	8	3	6
Wyoming	22.7	—	115.9	1.5	—	—
(rank)	2	—	8	1	—	—

*Data is from Table 9.

Table 11

A COMPARISON OF REGULATION INFORMATION BETWEEN THE BEST AND WORST STATES FROM TABLE*

<i>Regulation Data</i>	<i>Pennsyl.</i>	<i>Indiana</i>	<i>Arkansas</i>	<i>Florida</i>
<i>Workmen's Comp.:</i>				
(1) Elective or Compulsory	E	E	C	E
(2) Compensation:				
(a) Maximum - % of Wages	66 $\frac{2}{3}$	60	65	60
(b) Maximum Period	Duration of Disability	500 wks.	450 wks.	350 wks.
(c) Minimum to Maximum wkly. payments	\$21-\$52.50	\$18-45	\$10-38.50	\$8-45
(d) Total Max. Stated in Law	none	\$20,000	\$14,500	none
(3) Per Cent of Work Force Covered	87	74	69	77
(4) % Max. Temp. Total Disab. Benefit, of Wage (wife, 2 dep. children)	47.0	37.7	47.3	41.9
<i>Safety Laws:</i>				
(1) Fine; min-max	\$25-100	\$20-200	\$10-100	\$25-100
(2) Misdemeanor	none	none	general	none
(3) Maximum Jail Sentence	none	none	6 months (greatest of states)	none
(4) Civil Penalty	none	general	none	general
(5) Cease & Desist Order by Safety Dept.	none	none	none	general
<i>Safety Enforcement:</i>				
(1) Allocation per non-agricultural worker, rank among states	\$.34, 18	\$.05, 43	\$.40, 14	\$.30, 22
(2) Size of Inspection Staff	157	20	13	32
(3) Number of Wage earners/staff man	26,000	87,400	41,300	56,100
(4) Percentage of Wage earners covered	99.5	99.0	100	100

* See, *Hearings on S-2864*, at 195, 197-202, 894-947; Javits, *supra* note 56.

APPENDIX B**Occupational Safety and Health Act of 1968*****A BILL**

To authorize the Secretary of Labor to set standards to assure safe and healthful working conditions for working men and women; to assist the States to participate in efforts to assure such working conditions; to provide for research, information, education, and training in the field of occupational safety and health; and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Occupational Safety and Health Act of 1968."

CONGRESSIONAL FINDINGS AND PURPOSE**SEC. 2.(a) The Congress finds that—**

(1) personal injuries and illnesses arising out of work situations which result in death or disability are an increasing source of tragedy and extreme hardship for workers and their families, and that the number of such industries and illnesses has reached such sizable proportions in the Nation as to reduce to a serious degree the effectiveness of the manpower resources in the United States and thereby impose a substantial burden upon, and a hindrance to, interstate commerce in terms of lost production, wage loss, medical expenses, and disability compensation payments; and

(2) the public health and welfare of the Nation is endangered since occupational injuries and illnesses involve a large part of the population either as victims of such injuries and illnesses or as members of the victims' families.

(b) Congress declares it to be the purpose and policy, through the exercise by Congress of its powers to regulate commerce among the several States and with foreign nations and to provide for the general welfare, to assure so far as possible every working man and woman in the Nation safe and healthful working conditions—

(1) by establishing mandatory occupational safety and health standards applicable to businesses affecting commerce;

(2) by providing for the effective enforcement of such safety and health standards;

(3) by providing for research relating to occupational safety and health;

(4) by providing for training programs to increase and improve personnel engaged in the field of occupational safety and health;

(5) by more clearly delineating the responsibility of the Federal Government in its activities related to occupational safety and health in the private sector;

(6) by providing grants to the States to assist them in identifying their needs and responsibilities in the area of occupational safety and health, to develop plans in accordance with the provisions of this Act, and to conduct experimental and demonstration projects in connection therewith;

(7) by providing for appropriate accident and health reporting procedures which will help achieve the objective of this Act;

(8) **BY ESTABLISHING MINIMUM INJURY FREQUENCY RATES FOR INDUSTRIES SUBJECT TO THIS ACT WHICH WILL SERVE AS GOALS TO BE ACHIEVED THROUGH THE APPLICATION OF SAFETY AND HEALTH STANDARDS.**

* This text includes the author's recommendations, in upper case type. Suggested deletions are dashed over.

STANDARDS

SEC. 3.(a) Any employer engaged in a business affecting commerce shall furnish employment and a place of employment which are safe and healthful and shall comply with the standards prescribed from time to time by the Secretary after appropriate consultation with other Federal agencies by rule or regulation for the adoption of practices, means, methods, operations, conditions, and processes in order to provide safe and healthful employment and places of employment. ANY EMPLOYER WHO SHALL ACHIEVE IN ANY PLANT, WORK-PLACE, OR OTHER REPORTING UNIT AS DEFINED BY THE SECRETARY UNDER SECTION 15 (e) OF THIS ACT AN AVERAGE INJURY FREQUENCY RATE AT OR LESS THAN THE GOAL RATE SET BY THE SECRETARY UNDER SECTION 15(f) OF THIS ACT FOR THE APPLICABLE INDUSTRY, SHALL BE DEEMED TO HAVE COMPLIED WITH THE REQUIREMENTS OF THIS SECTION.

(b) Section 553 of title 5, United States Code, shall apply to any rulemaking by the Secretary under subsection (a) of this section.

(c) ANY PERSON, CORPORATION OR OTHER ORGANIZATION WHICH VENDS ANY MACHINE OR OTHER INSTRUMENTALITY, OR ANY OTHER MARKETABLE PRODUCTION AGENCY, WHICH WILL BE USED BY ANY EMPLOYEE OR ANY EMPLOYER SUBJECT TO THIS ACT IN THE PERFORMANCE OF THE OCCUPATIONAL DUTIES OF THAT EMPLOYEE, SHALL INCLUDE IN THE CONTRACT OF SALE PERTAINING TO SUCH ITEM A WARRANTY TO THE EFFECT THAT SUCH ITEM COMPLIES WITH ANY APPLICABLE HEALTH OR SAFETY STANDARDS PRESCRIBED BY THE SECRETARY UNDER SECTION 3(a) OF THIS ACT.

ADMINISTRATION

SEC. 4. In carrying out his responsibilities under this Act, the Secretary is authorized to—

(a) appoint, without regard to the civil service laws, such advisory committees or boards as he deems appropriate;

(b) use, with their consent, the services, facilities, and employees of Federal agencies with or without reimbursement, and with the consent of any State or political subdivision thereof, accept and use the services, facilities, and employees of the agencies of such State or subdivision with or without reimbursement; and

(c) employ experts and consultants or organizations thereof as authorized by section 3109, title 5, United States Code, compensate individuals so employed at rates not in excess of \$100 per diem, including traveltime, and allow them, while away from their homes or regular places of business, travel expenses (including per diem in lieu of subsistence) as authorized by section 5703 of title 5, United States Code, for persons in the Government service employed intermittently, while so employed, except that contracts for such employment may be renewed annually.

INSPECTIONS AND INVESTIGATIONS

SEC. 5.(a) In order to carry out the purposes of this Act, the Secretary or his designated representative, upon presenting appropriate credentials to the owner, operator, or agent in charge, is authorized—

(1) to enter upon at reasonable times any factory, plant, establishment, construction site, mine, or other areas or workplace or environment subject to the provisions of this Act; and

(2) to inspect and investigate during regular working hours and at other reasonable times, and within reasonable limits and in a reasonable manner, such place or environ-

ment and all pertinent conditions, structures, machines, apparatus, devices, equipment, and materials therein, and to question employees engaged in activities subject to the provisions of this Act.

(b) For the purpose of carrying out his duties under this Act, the Secretary may delegate his authority under this section to any agency of the Federal Government with or without reimbursement, and, with its consent and with or without reimbursement and under conditions the Secretary may prescribe, to any appropriate State agency or agencies designated by the Governor of the State.

(c) THE SECRETARY SHALL PROVIDE REGULAR TIME INTERVALS FOR THE INSPECTION OF ANY REPORTING UNIT SUBJECT TO ACT, SUCH TIME INTERVALS BEING AS SHORT AS FEASIBLE, AND APPLICABLE TO ANY AGENCY TO WHICH HE HAS DELEGATED HIS AUTHORITY UNDER SECTION 5(b) OF THIS ACT.

ADMINISTRATIVE ENFORCEMENT

SEC. 6.(a)(1) If, upon inspection or investigation, the Secretary determines that any person has violated the provisions of this Act or the regulations and standards established thereunder, he shall hold such hearings, issue such orders, and make such decisions, based upon findings of fact, as are deemed to be necessary to enforce the provisions of the Act, and for such purposes the Secretary and the district courts shall have the authority and jurisdiction provided in section 5 of the Act of June 30, 1936 (ch.881, 49Stat.2036), as amended.

(2) If an inspection or investigation discloses that a violation may result in imminent harm to the safety and health of workers, the Secretary or his duly authorized representative may immediately issue an order providing for the immediate cessation of such violation and any other measures he may deem necessary to correct or remove such violation and further, prohibit the employment of any persons in locations or under conditions where such violations exist, except to correct or remove the violation. Such order shall remain in effect during the pendency of any subsequent proceeding under paragraph (1) of this subsection and in the event of any judicial proceeding relating to such order before the proceeding under paragraph (1) of this subsection the only issue to be judicially determined shall be the existence of imminent harm to the safety and health of the workers.

(b) Each employer subject to this Act shall make, keep, and preserve, and make available to the Secretary such records concerning the requirements of section 3(a) of this Act, and shall make reports therefrom to the Secretary, as he may prescribe by regulation or order as necessary or appropriate for the enforcement of this Act. EACH SUCH EMPLOYER SHALL SUBMIT ANNUAL INJURY FREQUENCY RATE DATA COMPILED AND PRESENTED ACCORDING TO THE AMERICAN STANDARD METHOD OF RECORDING AND MEASURING WORK INJURY EXPERIENCE AS APPROVED BY THE AMERICAN STANDARDS ASSOCIATION IN 1954, OF THIS ACT OR ACCORDING TO ANY SYSTEM PRESCRIBED UNDER SECTION 15(d) AT SUCH TIMES AS THE SECRETARY SHALL REQUIRE.

(c) The Secretary, in consultation with the Secretary of Health, Education, and Welfare, shall provide for the establishment and supervision of programs for the education and training of employers and employees in the recognition, avoidance, and prevention of unsafe working conditions in employments covered by this Act, and to consult with and advise employers as to effective means of preventing occupational injuries and illnesses.

INJUNCTIONS, JUDICIAL ENFORCEMENT

SEC. 7.(a) Wherever the Secretary has reason to believe, either on the basis of an inspection or investigation, that conditions or practices existing in violation of section 3(a) of this Act, or any rule thereunder, are of such a nature that their immediate correction or

removal is reasonably required in order to safeguard the safety and health of workers, the Secretary may bring suit in a district court of the United States to enjoin or restrain the existence of such conditions or practices. Such relief shall include whatever is necessary to safeguard the safety and health of persons affected, including the closing of the establishment or place in question and prohibiting the entry of any person in such establishment or place, except to correct such conditions or practices. Any suit shall be brought in the district where the person who is responsible for the existence of such conditions or practices resides or transacts business.

(b) The district courts of the United States shall have jurisdiction to enforce any order of the Secretary under section 6 of this Act, and any person aggrieved by such order may obtain review thereof by such courts based upon the record before the Secretary.

(c) THE DISTRICT COURTS OF THE UNITED STATES SHALL HAVE JURISDICTION TO REVIEW CLAIMS BY EMPLOYERS SUBJECT TO THIS ACT THAT THE SECRETARY IS NOT ACTING IN THE PUBLIC INTEREST IN REFUSING TO GRANT VARIATION, TOLERANCE, EXEMPTION, OR SUBSIDY UNDER SECTION II OF THIS ACT.

(d) ANY EMPLOYEE OF ANY EMPLOYER, SUBJECT TO THIS ACT, SHALL BE ENTITLED TO BRING ANY ACTION FOR DAMAGES IN THE DISTRICT COURTS OF THE UNITED STATES OR IN THE COURTS OF THE VARIOUS STATES. THIS ACTION MUST BE BASED UPON EXPOSURE TO HAZARDOUS CONDITIONS IN VIOLATION OF THE PROVISIONS OF THIS ACT, REGARDLESS OF WHETHER THE EMPLOYER IS DEEMED TO HAVE COMPLIED WITH THE PROVISIONS OF THE ACT BY VIRTUE OF ATTAINMENT OF THE GOAL FREQUENCY RATE IN THAT EMPLOYEE'S REPORTING UNIT UNDER SECTION 3(a) OF THIS ACT.

INADMISSIBILITY AS EVIDENCE: CONFIDENTIALITY OF TRADE SECRETS

SEC. 8.(a) No record or determination of any administrative proceeding under this Act or any statement or report of any kind obtained or received in connection with the administration or enforcement of the provisions of this Act shall be made available to any third party or admitted or used as evidence in any civil action growing out of any matter mentioned in such record, determination, statement, or report, other than an action for enforcement or review under this Act; and

(b) In connection with any proceeding under this Act no witness or any other person shall be required to divulge trade secrets or secret processes.

PENALTIES

SEC. 9.(a) Any person who violates, or fails or refuses to comply with, section 3(a) of this Act, any rule issued under section 3(a) of this Act, or any order issued under section 6 of this Act, shall be subject to a civil penalty of not more than \$1,000 for each such violation. Each violation of such provisions or rules or order shall be a separate offense, except that in the case of a violation through continuing failure or neglect to comply with such provisions or rules or an order of the Secretary, each day of continuance of such failure or neglect shall be deemed a separate offense. The Secretary or his duly authorized representative is authorized to assess the civil penalties under this section. He may, upon application therefor, remit or mitigate any forfeiture provided for under this section and he shall have the authority to determine the facts upon all such applications.

(b) Penalties under this section shall be collected by the Secretary or by his duly authorized representative unless a district court determines that an order of the Secretary issued under section 6(a) (2) would not result in imminent harm to the safety and health of the workers.

(c) Any person who wilfully violates or fails or refuses to comply with the provisions of section 3(a) of this Act shall be guilty of a misdemeanor, and upon conviction shall be

punished by a fine of not more than \$5,000 or by imprisonment for not more than six months, or by both such fine and imprisonment; except that if the conviction is for a violation committed after a first conviction of such person, punishment shall be by a fine of not more than \$10,000 or by imprisonment for not more than one year, or by both such fine and imprisonment.

(d) Any person who forcibly assaults, resists, opposes, impedes, intimidates, or interferes with any person while engaged in or on account of the performance of inspections or investigatory duties under this Act shall be fined not more than \$5,000 or imprisoned not more than three years, or both. Whoever, in the commission of any such acts, uses a deadly or dangerous weapon, shall be fined not more than \$10,000 or imprisoned not more than ten years, or both. Whoever kills any person while engaged in or on account of the performance of inspecting or investigating duties under this Act shall be punished as provided under sections 1111 and 1114 of title 18, United States Code.

GOVERNMENT CONTRACTS

SEC. 10.(a) Each contract or subcontract exceeding \$2,500 and requiring or involving the employment of any person (1) to which the United States or any agency or instrumentality thereof, or the District of Columbia is a party, (2) which is made for or on behalf of the United States, any agency or instrumentality thereof, or the District of Columbia or (3) which is financed in whole or in part by loans or grants from, or loans insured or guaranteed by, the United States or any agency or instrumentality of the United States, shall include the requirement that no part of such contract will be performed in any place or under any conditions which do not meet the standards issued by the Secretary under section 3(a) of this Act.

(b) In establishing standards under section 3(a) of this Act, the Secretary shall to the extent feasible conform to such standards and those safety and health standards promulgated under other laws administered by him.

(c) In addition to the remedies otherwise provided in this Act, the Secretary of Labor may declare ineligible to receive any contracts subject to this Act any person or firm, or any firm, corporation, partnership, or association in which such person or firm has a controlling interest, which is found to have disregarded its obligations under this Act until such person or firm has satisfied the Secretary that it will comply with the requirements of this Act.

(d) In addition to the remedies otherwise provided in this Act, the Secretary may recommend to the appropriate contracting agency that such agency cancel, terminate, suspend, or cause to be canceled, or suspended, any contract made by any contracting agency for the failure of an employer who is a contractor or subcontractor to comply with the order of the Secretary issued under section 6 of this Act for the breach or violation by such employer of the requirements under subsection (a) of this section.

(e) This section shall not apply to any contract to be performed in a workplace within a foreign country or within any territory under the jurisdiction of the United States, except within a State, as that term is defined in section 20(f) of this Act.

VARIATIONS, TOLERANCES, AND EXEMPTIONS

SEC. 11. The Secretary may provide such reasonable limitations and may make such rules and regulations allowing reasonable variations, tolerances, and exemptions to and from any or all provisions of this Act as he may find necessary and proper in the public interest or to avoid serious impairment of the conduct of Government business. NO EXEMPTIONS SHALL BE BASED SOLELY UPON THE FINANCIAL INABILITY OF AN EMPLOYER TO COMPLY WITH ANY OF THE PROVISIONS OF THIS ACT. THE SECRETARY SHALL, UPON APPLICATION BY ANY EMPLOYER WITHIN SIXTY DAYS OF THE ISSUANCE OF ANY STANDARD UNDER SECTION 3(a) OF THIS ACT, GRANT AN APPROPRIATE SUBSIDY FOR THE PURPOSE OF COMPLIANCE WITH THAT STANDARD SHOULD HE FIND IN HIS DISCRETION THAT SUCH EMPLOYER IS ECONOMICALLY

UNABLE TO COMPLY WITH THE STANDARDS FOR REASONS OTHER THAN ITS OWN BUSINESS INEFFICIENCY OR DISADVANTAGEOUS FINANCIAL CONDITION. The Secretary shall keep an appropriately indexed record of all variations, tolerances, and exemptions AND SUBSIDIES, granted under this section, which shall be open for public inspection.

FEDERAL-STATE RELATIONSHIP

SEC. 12.(a) The Secretary may, in his discretion, by rule or order decline to assert jurisdiction over any occupational safety or health issue, or class or category of such issue, governed by any State law whenever in his opinion the provisions of such State law and their enforcement would reasonably carry out the objectives of this Act.

(b) Nothing in this Act shall prevent or bar any State agency or court from assuming and asserting jurisdiction over any occupational safety or health issue within five hundred and forty-five days following the effective date of this Act and thereafter over any such issue over which the Secretary declines to assert jurisdiction under subsection (a) of this section.

RELATIONSHIP TO OTHER FEDERAL PROGRAMS

SEC. 13. Nothing in this Act shall authorize the Secretary to regulate, or shall apply to, working conditions of employees with respect to whom another Federal agency has statutory authority to prescribe or enforce standards or regulations affecting occupational safety and health. The Secretary shall coordinate, to the greatest extent practicable, the occupational safety and health activities of all Federal agencies.

APPROPRIATIONS

SEC. 14. There are authorized to be appropriated such sums as may be necessary to carry out this Act.

RESEARCH AND RELATED ACTIVITIES

SEC. 15(a)(1) The Secretary of Health, Education, and Welfare shall from time to time consult with the Secretary in order to develop specific plans for such research, demonstrations, and experiments as are necessary to produce criteria enabling the Secretary to meet his responsibility for the formulation of safety and health standards under this Act; and the Secretary of Health, Education, and Welfare, on the basis of such research, demonstrations, and experiments and any other information available to him, shall develop such criteria.

(b) The Secretary of Health, Education, and Welfare is authorized to make inspections as provided in section 5 of this Act in order to carry out his functions and responsibilities under this section.

(c) The Secretary of Labor is authorized to enter into contracts, agreements, or other arrangements with appropriate public agencies or private organizations for the purpose of conducting studies related to his responsibilities for establishing and applying occupational safety and health standards under section 3 of this Act. In carrying out his responsibilities under this subsection, the Secretary shall consult with the Secretary of Health, Education, and Welfare in order to avoid any duplication of efforts under this section.

(d) the Secretary SHALL UTILIZE THE AMERICAN STANDARD METHOD OF RECORDING AND MEASURING WORK INJURY EXPERIENCE, AS PROVIDED BY SECTION 6(b) OF THIS ACT, OR, after consultation with the Secretary of Health, Education, and Welfare, shall MAY establish such accident and health reporting system for employers and for the States ~~as~~ IF he deems SUCH OTHER SYSTEMS necessary to carry out his responsibilities under this Act.

(e) THE SECRETARY SHALL DEFINE APPROPRIATE OCCUPATIONAL UNITS FOR PURPOSES OF REPORTING UNDER SECTION 6(b) OF THIS ACT ACCIDENT AND HEALTH DATA AS PROVIDED UNDER SECTION 15(d) OF THIS ACT.

(f) THE SECRETARY SHALL ESTABLISH INJURY FREQUENCY RATES TO SERVE AS GOALS TO BE ACHIEVED BY THIS ACT FOR EACH INDUSTRY ANY EMPLOYER OF WHICH IS SUBJECT TO THIS ACT.

SEC. 16.(a) The Secretary of Health, Education, and Welfare, after consultation with the Secretary of Labor and with other appropriate Federal departments and agencies, shall conduct (directly or by grants or contracts) educational programs to provide an adequate supply of personnel to carry out the purposes of this Act.

(b) The Secretary is also authorized to conduct (directly or by grants or contracts) short-term training or personnel engaged in work related to his responsibilities under this Act.

GRANTS TO THE STATES

SEC. 17.(a) The Secretary is authorized during the period beginning ~~July 1, 1968~~, and ending ~~June 30, 1971~~, to make grants to the States to assist them in identifying their needs and responsibilities in the area of occupational safety and health and to develop plans for—

(1) establishing systems for the collection of information concerning the nature and frequency of occupational injuries and diseases;

(2) increasing the expertise and enforcement capabilities of their personnel engaged in occupational safety and health programs; and

(3) otherwise improving the administration and enforcement of State occupational safety and health laws, including standards thereunder, consistent with the objectives of this Act.

(b) The Secretary is authorized during the period beginning ~~July 1, 1968~~, and ending ~~June 30, 1971~~, to make grants to the States for experimental and demonstration projects consistent with the objectives set forth in paragraphs (1) through (3) of subsection (a) of this section.

(c) The Governor of the State shall designate the appropriate State agency, or agencies, for receipt of any grant made by the Secretary under this section.

(d) Any State agency, or agencies, designated by the Governor of the State, desiring a grant under this section shall submit an application therefor to the Secretary.

(e) The Secretary shall review the application, and shall, after consultation with the Secretary of Health, Education, and Welfare, approve or reject such application.

(f) As a condition for any grant under this section the State must agree to comply with the reporting and accounting requirements which the Secretary shall from time to time prescribe by rule or regulation to assure that monies expended thereunder are in furtherance of the purposes of this section.

(g) The Federal share for each State grant under this section may be up to 90 per centum of the State's total cost.

(h) Prior to ~~June 30, 1971~~, the Secretary shall, after consultation with the Secretary of Health, Education, and Welfare, transmit a report to the President and to Congress, describing the experience under the program and making any recommendations as he may deem appropriate.

EFFECT ON OTHER LAWS

SEC. 18. Nothing in this Act shall be construed as repealing or modifying in any way other Federal laws prescribing safety and health requirements.

AUDITS

SEC. 19. The Comptroller General of the United States, or any of his duly authorized representatives, shall have access for the purpose of audit and examinations to any books, documents, papers, and records of the grantees that are pertinent to the grants received under this Act.

REPORTS

SEC. 20. Within one hundred and twenty days following the convening of the first session of each Congress, the Secretary and the Secretary of Health, Education, and Welfare shall jointly prepare and submit to the President for transmittal to the Congress a biennial report upon the subject matter of this Act, the progress concerning the achievement of its purposes, the needs and requirements in the field of occupational safety and health, and any other relevant information, and including any recommendations they may deem appropriate.

DEFINITIONS

SEC. 21.(a) The term "Secretary" appearing in this Act means the Secretary of Labor or his duly authorized representatives.

(b) The term "commerce" means trade, traffic, commerce, transportation, or communication among the several States; or between a State and any place outside thereof; or within the District of Columbia, or a possession of the United States, or between points in the same State but through a point outside thereof.

(c) The term "person" means one or more individuals, partnerships, associations, corporations, business trusts, legal representatives, or any organized groups of persons.

(d) The term "employer" means a person engaged in a business affecting commerce who has employees and includes any person acting directly in the interest of an employer in relation to an employee, but does not include the United States or any State or political subdivision of a State or any labor organization (other than when acting as an employer), or anyone acting in the capacity of officer or agent of such labor organization.

(e) The term "employee" means an individual employed by an employer.

(f) The term "State" includes a State of the United States, the District of Columbia, Puerto Rico, and possessions of the United States.

SEPARABILITY

SEC. 22. If any provision of this Act, or the application of such provision to any person or circumstance, shall be held invalid, the remainder of this Act, or the application of such provision to persons or circumstances other than those as to which it is held invalid, shall not be affected thereby.